



NEC3 Term Service Contract (TSC3)

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

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

for **DRAKENSBERG FIRE PROTECTION SYSTEM**

Contents:	No of pages
Part C1 Agreements & Contract Data	[•]
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Part C3 Scope of Work	[•]

CONTRACT No. [Insert at award stage]

PART C1: AGREEMENTS & CONTRACT DATA

Contents:	No of pages
C1.1 Form of Offer and Acceptance	[•]
C1.2a Contract Data provided by the <i>Employer</i>	[•]
C1.2b Contract Data provided by the <i>Contractor</i>	[•]

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 inspection, servicing, testing and supply of spares of:

DRAKENSBERG FIRE PROTECTION SYSTEM

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 [●]
	Sub total	R [●]
	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:

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: Service 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 and signed original copy of this document, including the Schedule of Deviations (if any).

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 TSC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option:	
	dispute resolution Option and secondary Options	<p>A: Priced contract with price list</p> <p>W1: Dispute resolution procedure</p> <p>X1: Price adjustment for inflation</p> <p>X2: Changes in the law</p> <p>X17: Low service damages</p> <p>X18: Limitation of liability</p> <p>X19: Task Order</p> <p>Z: Additional conditions of contract</p>
	of the NEC3 Term Service Contract April 2013 ² (TSC3)	
10.1	The <i>Employer</i> 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
10.1	The <i>Service Manager</i> is (name):	Thobeka Cungcu
	Address	15 Pasita Street, Rosenpark, Durbanville, 7550
	Email	CungcuT@eskom.co.za
	Tel	021 941 5720
	Site	Drakensberg Pumped Storage Scheme
11.2(2)	The Affected Property is	Drakensberg Pumped Storage Scheme
11.2(13)	The <i>service</i> is	The inspection, servicing, testing and supply of spares of the Drakensberg Fire Protection System.

² Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 539 1902 www.ecs.co.za

11.2(14) The following matters will be included in the Risk Register

No Drakensberg Pumped Storage Scheme

- 1 Matters notified as Early Warnings
- 2 Community unrests
- 3 unavailability of budget of forthcoming financial year/s
- 4 Environmental risks relating to waste disposal
- 5 Delay in the supply of services
- 6 Legal compliance
- 7 Unavailability of required resources
- 8 Adverse weather conditions
- 9 Unforeseen interfacing issues
- 10 Road conditions
- 11 Labour unrests
- 12 Spares no longer available
- 13 Spares no longer required due to upgrades
- 14 Spares contain substances that are banned for production, distribution, import, export, sale and use.

11.2(15)	The Service Information is in	Part 3: Scope of Work and all documents and drawings to which it makes reference.
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	<ul style="list-style-type: none"> • 1 week • 3 days for urgent matters • Periods as stated in the works information • Immediately within the shift for health and safety matters
2	The Contractor's main responsibilities	Data required by this section of the core clauses is also provided by the Contractor in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data
21.1	The <i>Contractor</i> submits a first plan for acceptance within	2 weeks of the Contract Date
3	Time	
30.1	The <i>starting date</i> is.	Contract Date
30.1	The <i>service period</i> is	5 years
4	Testing and defects	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
42.1	The <i>defects date</i> is	<p>Patent Defects- 12 months from the in-service (commissioning) date</p> <p>Latent Defects- 2 years after the in-service (commissioning) date</p>
42.2	The <i>defect</i> correction period is	To be agreed between Contractor and Service Manager once both parties have established the

		most appropriate period for correction of the defect which must be to the benefit of the plant.
42.3	The <i>defects</i> access period is	To be communicated by the <i>Service Manager</i>
44	Warranties	The <i>Contractor</i> shall provide the Employer the with a 3-year warranty after installation of the component
5	Payment	
50.1	The <i>assessment interval</i> is	between the 24 th and 25 th day of each successive month or after completion of Task Order.
51.1	The <i>currency of this contract</i> is the	South African Rand
51.2	The period within which payments are made is	4 weeks from when the <i>Contractor</i> provides the <i>Employer</i> with an invoice in accordance with the <i>law of the contract</i> and the <i>Employer's</i> requirements stated in the Z Clauses and/or <i>services Information</i> , reflecting the amount due for payment equal to that certified, accepted, or corrected by the <i>Service Manager</i> , or decided by the <i>Adjudicator</i> or awarded by the <i>tribunal</i> , as applicable.
51.4	The <i>interest rate</i> is	dependant on the required currency of the payment. (i) For South African Rand (ZAR), it is the publicly quoted South African Rand Overnight Index Average (ZARONIA) rate published by the South African Reserve Bank.
6	Compensation events	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
7	Use of Equipment Plant and Materials	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 <i>Employer's</i> risks	1. None
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 price list	
20.5	The <i>Contractor</i> prepares forecasts of the final total of the Prices for the whole of the	

	service at intervals no longer than	1 week.
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11 Data for Option W1

W1.1	The <i>Adjudicator</i>	the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by Adjudicator nominating body).
W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the Institution of Civil Engineers (London) (see www.ice-sa.org.za) or its successor body.
W1.4(2)	The <i>tribunal</i> is:	arbitration
W1.4(5)	The <i>arbitration procedure</i> 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	Johannesburg, South Africa
	The person or organisation who will choose an arbitrator	the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.
	- if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is	

12 Data for secondary Option clauses

X1	Price adjustment for inflation																									
X1.1	The <i>base date</i> for indices is	One month before tender closure. Price adjustment will be fixed and firm for the first 12 months.																								
	The proportions used to calculate the Price Adjustment Factor are:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">proportion</th> <th style="width: 15%;">linked to index for</th> <th style="width: 70%;">Index prepared by</th> </tr> </thead> <tbody> <tr> <td>0.</td> <td>[•]</td> <td>[•]</td> </tr> <tr> <td>0.</td> <td>[•]</td> <td>[•]</td> </tr> <tr> <td>0.</td> <td>[•]</td> <td>[•]</td> </tr> <tr> <td>0.</td> <td>[•]</td> <td>[•]</td> </tr> <tr> <td>0.</td> <td>[•]</td> <td>[•]</td> </tr> <tr> <td>0.15</td> <td colspan="2">non-adjustable</td> </tr> <tr> <td>1.00</td> <td colspan="2"></td> </tr> </tbody> </table>	proportion	linked to index for	Index prepared by	0.	[•]	[•]	0.	[•]	[•]	0.	[•]	[•]	0.	[•]	[•]	0.	[•]	[•]	0.15	non-adjustable		1.00		
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0.15	non-adjustable																									
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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.																								

X17	Low service damages													
X17.1	The <i>service level table</i> is in													
	<table border="1"> <thead> <tr> <th>Low service damages description</th> <th>Damages</th> </tr> </thead> <tbody> <tr> <td>Safety file not approved (approval 2 (two) weeks prior to execution. Safety plan must contain all current and relevant information and needs to be re-approved when documents change</td> <td>10% per day until corrected capped 20% of Task order value</td> </tr> <tr> <td>Rework due to poor workmanship</td> <td>10% per day until corrected capped 20% of Task Order value</td> </tr> <tr> <td>Incomplete documentation provided</td> <td>10% per day until corrected capped 25% of Task Order value</td> </tr> <tr> <td>Delayed submission of maintenance/progress report</td> <td>10% per day until corrected capped 25% of Task Order value</td> </tr> <tr> <td>Delayed mobilisation of personnel and equipment</td> <td>10% per day until corrected capped 25% of Task Order value</td> </tr> </tbody> </table>	Low service damages description	Damages	Safety file not approved (approval 2 (two) weeks prior to execution. Safety plan must contain all current and relevant information and needs to be re-approved when documents change	10% per day until corrected capped 20% of Task order value	Rework due to poor workmanship	10% per day until corrected capped 20% of Task Order value	Incomplete documentation provided	10% per day until corrected capped 25% of Task Order value	Delayed submission of maintenance/progress report	10% per day until corrected capped 25% of Task Order value	Delayed mobilisation of personnel and equipment	10% per day until corrected capped 25% of Task Order value	
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X18	Limitation of liability													
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to	R0.0 (zero Rand)												
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to	the amount of the deductibles relevant to the event												
X18.3	The <i>Contractor's</i> liability for Defects due to his design of an item of Equipment is limited to	<p>The greater of</p> <ul style="list-style-type: none"> • the total of the Prices at the Contract Date and • the amounts excluded and unrecoverable from the <i>Employer's</i> insurance (other than the resulting physical damage to the <i>Employer's</i> property which is not excluded) plus the applicable deductibles 												
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> , for all matters arising under or in connection with this contract, other than the excluded matters, is limited to	<p>the total of the Prices other than for the additional excluded matters.</p> <p>The <i>Contractor's</i> total liability for the additional excluded matters is not limited.</p> <p>The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for</p> <ul style="list-style-type: none"> • Defects due to his design, plan and specification, • Defects due to manufacture and fabrication outside the Affected Property, • loss of or damage to property (other than 												

		<p>the <i>Employer's</i> property, Plant and Materials),</p> <ul style="list-style-type: none"> • death of or injury to a person and • infringement of an intellectual property right.
X18.5	The <i>end of liability date</i> is	5 years after the end of the <i>service period</i>.
X19	Task Order	
X19.3	Delay Damages	10% applicable to each Task Order value at Task Order completion
X19.5	The <i>Contractor</i> submits a Task Order programme to the <i>Service Manager</i> within	5 days of receiving the Task Order
Z	The <i>additional conditions of contract</i> are	Z1 to Z14 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.

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 *Service 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 *Service Manager* within thirty days of the notification or as otherwise instructed by the *Service 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 Service.

- 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 P4 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 *Service 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 Affected Property or any portion thereof, in the course of Providing the Service and after the end of the *service period*, requires the prior written consent of the *Service 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 *Service Manager* 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 service. Without limitation the Contractor:
- accepts that the Employer may appoint him as the "Main Contractor" for the Affected Property;
 - warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with 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 the service; and
 - undertakes, in and about the execution of the service, to comply 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.

- The *Contractor*, in and about the execution of the *service*, 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.

Z6.2 Personal Protective Equipment (PPE) Compliance:

- Compliance with PPE requirements is compulsory and non-negotiable across all operational areas. Non-compliance will result in immediate and strict consequence management as stipulated in the memorandum referenced in Annexure B of the OHS Requirements.

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 *Service 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 Service 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 the last paragraph of core clause 61.3 and replace with:

If the *Contractor* does not notify a compensation event within eight weeks of becoming aware of the event, he is not entitled to a change in the Prices.

Z8.2 Add to clause 62.3, The *Service 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 clause 62.5 The *Service Manager* notifies the *Contractor* if the *Employer's* authority is required and includes in his notification any extension to 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 82.1 is provided for in 60.1(12) and the *Employer's* liability under the indemnity is limited to compensation as provided for in core

clause 63 and X19.11 if Option X19 Task Order applies to this contract.

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 business rescue order granted against it.

Z11 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 Subcontractors 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.

Z11.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z11.2 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.

Z11.3 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.

Z11.4 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.

Z12 Insurance

Z 12 .1 Replace core clause 83 with the following:

Insurance cover 83

- 83.1 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.
- 83.2 The *Contractor* provides the insurances stated in the Insurance Table A 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 caused by the <i>Contractor</i> to the <i>Employer's</i> property	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.
Loss of or damage to Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.
Loss of or damage to Equipment	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.
The <i>Contractor's</i> liability for loss of or damage to property (except the <i>Employer's</i> property, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) arising from or in connection with the <i>Contractor's</i> Providing the Service	<u>Loss of or damage to property</u> The replacement cost <u>Bodily injury to or death of a person</u> The amount required by the applicable law.
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

Z 12.2 Replace core clause 86 with the following:

Insurance by the Employer 86

86.1 The *Employer* provides the insurances stated in the Insurance Table B

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

Z13 Intellectual Property – Eskom owning Intellectual Property

“Intellectual Property” means (a) patents, trade marks, service marks, rights in designs, trade names, trade secrets, know how, copyrights and topography rights, in each case whether registered or not; (b) applications for registration of any of them; (c) rights under licences and consents in relation to any of them; (d) all forms of protection of a similar nature or having equivalent or similar effect to any of them which may subsist anywhere in the world.

“Background Intellectual Property” means any and all Intellectual Property rights that are not Foreground Intellectual Property, and are owned or controlled by the relevant party or licensed to the relevant party prior to or outside of the *services* but required for the purposes of the *services*.

“Foreground Intellectual Property” means all Intellectual Property rights and other matter capable of being the subject of intellectual property rights that is conceived, first reduced to practice or writing or developed in whole or in substantial part in the course of the execution of the *services* and rights which are developed substantially as a result of the *services*. Any *services* that will be developed, changed, modified and/or improved specifically for the Purposes will be Foreground Intellectual Property. Any data or any other information relating to *Employer’s* proprietary information generated from the use of the *Contractor’s* Background Intellectual Property.

Z13.1 The *Contractor* retains ownership of all Background Intellectual Property rights made by or on behalf of the *Contractor* as part of the *works* in information or material it uses in carrying out the *works*

Z13.2 All Foreground Intellectual Property rights, contained in any developed materials which are created by the *Contractor* or on behalf of the *Contractor*, for the purposes of and in support of the execution of the *works* (*Employer’s* IP) vest with the *Employer*

Z13.3 Any data or any other information relating to *Employer’s* proprietary information generated from the use of the *Contractor’s* Background Intellectual Property, the copyright therein shall be owned by the *Employer*

Z13.4 The *Contractor* acknowledges that all rights, title, and interest in and to the Foreground

Intellectual Property that may result or originate from or be developed in execution of the *services* vests in the *Employer* and that the *Contractor* has no claim of any nature in and to the Foreground Intellectual Property.

- Z13.5** The *Contractor* ensures that a copyright notice is incorporated or embossed or labelled on the Foreground Intellectual Property, where the *Employer* is reflected as the owner of the Foreground Intellectual Property.
- Z13.6** The *Contractor* is obliged to provide Foreground Intellectual Property manufacturing documents, designs, processes and/or specifications to the *Employer*/ before/on the *completion date*
- Z13.7** The *Contractor* procures that each Sub-*Contractor* executes all and any *services*/ and takes all and any other actions as may be required, in order to give effect to this Agreement.
- Z13.8** The *Employer* retains all Background Intellectual Property rights in all documents made by or on behalf of the *Employer* including all documents and requirements provided prior to or during the execution of the *services*. The *Contractor* does not, without the written consent, of the *Employer* copy, use or issue to a third party any of the *Employer's* Background Intellectual Property documents and requirements except for the purposes of executing the *services* .
- Z13.9** Either party procures that any third party executes confidentiality undertakings not to disclose to any other third parties, any of the *Employer's* Background Intellectual Property and IP documents and requirements at all, in respect of the *Employer*, or the Background Intellectual Property, in respect of the *Contractor*.
- Z13.10** **Third Party Claims:**
- Z13.10.1** In the event of any claims being made or actions brought against the *Employer*, on the ground that the *Contractor* infringed any patent, trade mark or copyright, the *Contractor* is notified thereof and at its own expense, conducts all negotiations in consultation with the *Employer* for the settlement of the claim and litigation that may arise from such alleged infringement, provided that the *Employer* will not bear any financial burden or losses.
- Z13.10.2** Save where the *Contractor* fails to take over the conduct of the negotiation or litigation within a reasonable time of the notification of the alleged infringement, the *Employer* does not make any admission which might be prejudicial to the *Contractor's* position. The *Employer*, at the request and the cost of the *Contractor* affords it all reasonable technical assistance that the *Employer* is able to provide for the purpose of contesting any such claim or action.
- Z13.10.3** Should it be held in any such action that any such protected rights have been infringed, as definitely stated by a judgment of the court before which the action is brought, the *Contractor*, at its own expense and in consultation with the *Employer*, either:
- a. procures for [Employer/Client/Purchaser] the right to continue to use the affected item or design, or
 - b. replaces the said affected item or design with a non-infringing item, or
 - c. provides a design of equivalent quality or modify such affected item or design so as to make it non-infringing without affecting the quality.
- Z13.10.4** Notwithstanding anything contained in this contract, the foregoing sets forth the entire responsibility of [Contractor / Consultant / Supplier] with respect to claims relating to infringement.
- Z13.10.5** Where it is alleged that the *Employer* has committed an infringement as intended vis-à-vis the *Contractor* as set out in the third party intellectual property infringement clause, the *Employer* has the same rights and obligations as the *Contractor* mutatis mutandis, as regards such alleged infringement.
- Z13.10.6** The *Contractor* herewith indemnifies the *Employer* and undertakes to keep the *Employer* indemnified against all claims of whatsoever nature, real or imagined, which may be made

against the *Employer* arising from the infringement of any third party intellectual property rights.

Z14 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 <i>Employer's</i> 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.

Z14.1 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.

Z14.2 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 Z14.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.

Z14.3 The *Employer* manages asbestos and ACM according to the Standard.

- Z14.4 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.
- Z14.5 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.
- Z14.6 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.
- Z14.7 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.

C1.2 Contract Data

Part two - Data provided by the Contractor

Notes to a tendering contractor:

1. Please read both the both the NEC3 Term Service Contract April 2013 and the relevant parts of its Guidance Notes (TSC3-GN)³ in order to understand the implications of this Data which the tenderer is required to complete.
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 <i>Contractor</i> is (Name): Address Tel No. Fax No.	
11.2(8)	The <i>direct fee percentage</i> is The <i>subcontracted fee percentage</i> is	% %
11.2(14)	The following matters will be included in the Risk Register	
11.2(15)	The Service Information for the <i>Contractor's</i> plan is in:	
21.1	The plan identified in the Contract Data is contained in:	
24.1	The key people are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job Responsibilities: Qualifications:	

³ Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 5391902 or www.ecs.co.za

Experience:

CV's (and further key person's data including CVs) are in .

A	Priced contract with price list
11.2(12)	The <i>price list</i> is in
11.2(19)	The tendered total of the Prices is R

PART 2: PRICING DATA

TSC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	2
C2.2	The <i>price list</i>	[•]

C2.1 Pricing assumptions: Option A

How work is priced and assessed for payment

Clause 11 in NEC3 Term Service Contract (TSC3) core clauses and Option A states:

Identified and defined terms	11	
	11.2	(12) The Price List is the <i>price list</i> unless later changed in accordance with this contract.
		(17) The Price for Services Provided to Date is the total of
		<ul style="list-style-type: none">• the Price for each lump sum item in the Price List which the <i>Contractor</i> has completed and• where a quantity is stated for an item in the Price List, an amount calculated by multiplying the quantity which the <i>Contractor</i> has completed by the rate.
		(19) The Prices are the amounts stated in the Price column of the Price List. Where a quantity is stated for an item in the Price List, the Price is calculated by multiplying the quantity by the rate.

This confirms that Option A is a priced contract where the Prices are derived from a list of items of service which can be priced as lump sums or as expected quantities of service multiplied by a rate or a mix of both.

Function of the Price List

Clause 54.1 in Option A states: "Information in the Price List is not Service Information". This confirms that instructions to do work or how it is to be done are not included in the Price List but in the Service Information. This is further confirmed by Clause 20.1 which states, "The *Contractor* Provides the Service in accordance with the Service Information". Hence the *Contractor* does **not** Provide the Service in accordance with the Price List. The Price List is only a pricing document.

Link to the *Contractor's* plan

Clause 21.4 states "The *Contractor* provides information which shows how each item description on the Price List relates to the operations on each plan which he submits for acceptance". Hence when compiling the *price list*, the tendering contractor needs to develop his first clause 21.2 plan in such a way that operations shown on it can be priced in the *price list* and result in a satisfactory cash flow in terms of clause 11.2(17).

Preparing the *price list*

Before preparing the *price list*, both the *Employer* and tendering contractors should read the TSC3 Guidance Notes pages 14 and 15. In an Option A contract, either Party may have entered items into the *price list* either as a process of offer and acceptance (tendering) or by negotiation depending on the nature of the *service* to be provided. Alternatively, 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 the *price list* to be prepared and priced by him.

It is assumed that in preparing or finalising the *price list* the *Contractor*:

- Has taken account of the guidance given in the TSC3 Guidance Notes relevant to Option A;
- Understands the function of the Price List and how work is priced and paid for;
- Is aware of the need to link operations shown in his plan to items shown in the Price List;
- Has listed and priced items in the *price list* which are inclusive of everything necessary and incidental to Providing the Service in accordance with the Service 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 item within the Prices or rates of other listed items in order to fulfil the obligation to complete the *service* for the tendered total of the Prices.

- Understands there is no adjustment to items priced as lump sums if the amount, or quantity, of work within that item later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the (lump sum) Prices is as a result of a compensation event.

Format of the *price list*

(From the example given in an Appendix within the TSC3 Guidance Notes)

Entries in the first four columns in the *price list* in section C2.2 are made either by the *Employer* or the tendering contractor.

If the *Contractor* is to be paid an amount for the item which is not adjusted if the quantity of work in the item changes, the tendering contractor enters the amount in the Price column only, the Unit, Expected Quantity and Rate columns being left blank.

If the *Contractor* is to be paid an amount for an item of work which is the rate for the work multiplied by the quantity completed, the tendering contractor enters the rate which is then multiplied by the Expected Quantity to produce the Price, which is also entered.

If the *Contractor* is to be paid a Price for an item proportional to the length of time for which a service is provided, a unit of time is stated in the Unit column and the expected length of time (as a quantity of the stated units of time) is stated in the Expected Quantity column.

APPENDIX A: PRICING DATA

C2.2.2 Price List

Item nr	Description	Unit	Expected Quantity	Rate	Price
1	Bill no 1 – General Preliminary ALL work to be done by the Appointed Contractor including Safety Compliance Services and emergency response Eskom is an ISO 9001, 18001 registered company and requires from the contractor to adhere to these				
1.1	To provide Eskom with a Safety File as required and to maintain the fire protection systems throughout the contract period as contemplated	Sum	1		
1.2	Provide contract employees with appropriate Personal Protective Equipment	Sum	1		
1.4	The Contractor shall compile a file, in duplicate and in electronic format (as described) which shall be kept up – to-date throughout the contract period and one physical and one electronic copy returned when the contract period has expired.	Sum	1		
Total Bill 1					

Bill 2: <u>Monthly</u> inspect gaseous fire protection systems:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
2	Monthly Inspection intervals For the inspection of gaseous fire systems (as per scope) inclusive of all supervision, labour, accommodation, living out, and traveling costs of:						
2.1	Technician	Ea	2	2			
2.2	Accommodation	Ea	2	2			
2.3	Living Out	Ea	2	2			
2.4	Transport	km					
Total Bill 2							

Bill 3: 6-Monthly inspect gaseous fire protection systems:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
3	6-Monthly Inspection intervals For the inspection of gaseous fire systems (as per scope) inclusive of all supervision, labour, accommodation, living out and traveling costs of:						
3.1	Technician	Ea	2	2			
3.2	Accommodation	Ea	2	2			
3.3	Living Out	Ea	2	2			
3.4	Transport	km					
Total Bill 3							

Bill 4: 6-Monthly Inspection of fire doors:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
4	6-Monthly Inspection of Fire Door intervals For the inspection of fire doors inclusive of all supervision, labour, accommodation, living out and traveling costs of:						
4.1	Technician	Ea	2	2			
4.2	Accommodation	Ea	2	2			
4.3	Living Out	Ea	2	2			
4.4	Transport	km					
Total Bill 4							

Bill 5: 6-Monthly Inspection of fire reticulation mains:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
5	6-Monthly Inspection of Fire Reticulation Mains intervals For the inspection of fire reticulation mains inclusive of all supervision, labour, materials, and traveling costs of:						
5.1	Technician	Ea	2	2			
5.2	Accommodation	Ea	2	2			
5.3	Living Out	Ea	2	2			
5.4	Transport	km					
Total Bill 5							

Bill 6: <u>Yearly</u> Maintenance manual fire protection systems:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
6	Yearly Maintenance intervals For the servicing of manual fire protection systems inclusive of all supervision, labour, materials, accommodation, living out and traveling costs of:					
6.1	Fire Extinguishers	Ea	265			
6.2	Hydrants	Ea	37			
6.3	Hose Reels	Ea	14			
Total Bill 6						

Bill 7: <u>Yearly</u> Inspection of fire stops and intumescent coatings:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
7	Yearly Inspection of Fire Stops and Intumescent Coating of Cables intervals For the inspection of fire stops and cable intumescent coating, inclusive of all supervision, labour, accommodation, living out and traveling costs of:					
7.1	Technician	Ea	2	2		
7.2	Accommodation	Ea	2	2		
7.3	Living Out	Ea	2	2		
7.4	Transport	km				
Total Bill 7						

Bill 8: <u>Yearly</u> service gaseous fire protection systems:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
8	Yearly Service intervals For the inspection and service of gaseous fire systems (as per scope) inclusive of all supervision, labour, accommodation, living out and traveling costs of:					
8.1	Technician	Ea	2	2		
8.2	Accommodation	Ea	2	2		
8.3	Living Out	Ea	2	2		
8.4	Transport	km				
Total Bill 8						

Bill 9: Yearly functional test of gaseous fire protection systems:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
9	Yearly Functional Test intervals For the functional test of gaseous fire systems (as per scope) inclusive of all supervision, labour, materials, and traveling costs of:						
9.1	Equipment Room & Comms Room Gaseous Fire Protection Systems:						
9.1.1	Technician	Ea	2	1			
9.1.2	Accommodation	Ea	2	1			
9.1.3	Living Out	Ea	2	1			
9.1.4	Transport	km					
Total Bill 9							

Bill 10: Yearly integrity test of gaseous fire protection systems:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
10	Yearly Integrity Test intervals For the integrity test of gaseous fire systems (as per scope) inclusive of all supervision, labour, materials, accommodation, living out and traveling costs of:					
10.1	Equipment Room Gaseous Fire Protection System:					
10.1.1	Conduct Integrity Test on Fire Protected Area	Ea	1			
10.2	Communications Room Gaseous Fire Protection System:					
10.2.1	Conduct Integrity Test on Fire Protected Area	Ea	1			
Total Bill 10						

Bill 11: Yearly sampling & testing of foam storage systems:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
11	Yearly Foam Sampling & Testing intervals For the sampling & testing of foam systems inclusive of all supervision,						

	labour, materials, accommodation, living out and traveling costs of:						
11.1	Foam Systems:	Days		1			
11.1.1	Generator Transformer 1 Foam Storage Tank	Ea	1				
11.1.2	Generator Transformer 2 & Service Transformer 1 Foam Storage Tank	Ea	1				
11.1.3	Station Transformers 1&2 Foam Storage Tank	Ea	1				
11.1.4	Generator Transformer 3 Foam Storage Tank	Ea	1				
11.1.5	Generator Transformer 4 & Service Transformer 2 Foam Storage Tank	Ea	1				
11.1.6	Portable Foam Trolleys:						
11.1.6.1	Machine Hall (FG1798)	Ea	1				
11.1.6.2	Machine Hall (F2FU2)	Ea	1				
11.1.6.3	Lower Machine Hall (FGS3243)	Ea	1				
Total Bill 11							

Bill 12: Yearly water supply proving test on hydrants:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
12	Yearly Water Supply Proving Test intervals For the water supply proving testing of hydrants inclusive of all supervision, labour, accommodation, living out and traveling costs of:						
12.1	Hydrants	Days		1			
12.1.1	Power House Hydrants (Most Remote Hydrant)	Ea	1				
12.1.2	Transformer Hydrants	Ea	1				
12.1.3	Surface Building Hydrants	Ea	1				
12.1.4	Outside Store Hydrants	Ea	1				
12.1.5	Drainage Gallery	Ea	1				
Total Bill 12							

Bill 13: Yearly inspection & performance test of stores fire pump:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
13	Yearly Inspection & Performance Test intervals For the inspection & performance testing of stores fire pump inclusive of all supervision, labour, accommodation, living out and traveling costs of:						
13.1	Stores Fire Pump	Ea	1				
13.1.1	Technician	Ea	2	1			
13.1.2	Accommodation	Ea	2	1			
13.1.3	Living Out	Ea	2	1			
13.1.4	Transport	km					
Total Bill 13							

Bill 14 Yearly inspection & functional test of fire dampers:							
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months	
14	Yearly Inspection & Functional Test intervals For the functional testing of fire dampers inclusive of all supervision, labour, and traveling costs of:						
14.1	Solenoid Operated Fire Dampers	Ea	51				
14.2	Fusible Link Type Fire Dampers	Ea	45				
14.3	Control Room AHU Motorised Dampers	Ea	4				
14.4	Surface Building AHU Motorised Dampers	Ea	4				
Total Bill 14							

Bill 15 Yearly service of SCBA Sets:							
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months	
15	Yearly Service intervals For the servicing of SCBA Sets inclusive of all supervision, labour, materials, accommodation, living out allowance and traveling costs of:						
15.1	Self-Contained Breathing Apparatus (SCBA)	Ea	15				
Total Bill 15							

Bill 16: Yearly Inspection of foam systems:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
16	Yearly Inspection of Foam Systems intervals For the inspection of foam systems inclusive of all supervision, labour, accomodation, living out and traveling costs of:						
16.1	Technician	Ea	2	2			
16.2	Accommodation	Ea	2	2			
16.3	Living Out	Ea	2	2			
16.4	Transport	km					
Total Bill 16							

Bill 17: 2-Yearly internal inspection of SCBA Sets:							
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months	
17	2-Yearly Internal Inspection intervals For the internal inspection of SCBA Sets inclusive of all supervision, labour, materials, transportation, accommodation, living out allowance and traveling costs of:						
17.1	Self-Contained Breathing Apparatus (SCBA)	Ea	15				
Total Bill 17							

Bill 18: 3-Yearly hydrostatic pressure testing of gaseous fire protection flexible hoses:							
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months	
18	3-Yearly Hydrostatic Pressure Test intervals For the hydrostatic pressure testing of gaseous fire protection flexible hoses inclusive of all supervision, labour, and traveling costs of:						
18.1	Equipment Room Gaseous Fire Protection System						
18.1.1	Discharge Hoses	Ea	8				
18.1.2	Interconnecting Hoses	Ea	7				
18.2	Communications Room Gaseous Fire Protection System						
18.2.1	Discharge Hoses	Ea	2				
18.2.2	Interconnecting Hoses	Ea	1				
Total Bill 18							

Bill 19: 4-Yearly hydrostatic pressure testing of SCBA Sets:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
19	4-Yearly Hydrostatic Pressure Test intervals For the hydrostatic pressure testing of SCBA Sets inclusive of all supervision, labour, materials, transportation, accommodation, living out allowance and traveling costs of:					
19.1	Self-Contained Breathing Apparatus (SCBA)	Ea	15			
Total Bill 19						

Bill 20: 5-Yearly Extended Maintenance Overhaul and hydrostatic pressure testing of fire extinguishers, hydrant hoses and hose reels:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
20	5-Yearly Extended Maintenance Overhaul and Hydrostatic Pressure Test intervals For the hydrostatic pressure testing of fire extinguishers, hose reels and hydrant hoses inclusive of all supervision, labour, accommodation, living out allowance and traveling costs of:					
20.1	Fire Extinguishers	Ea	265			
20.2	Hydrant hoses	Ea	37			
20.3	Hose Reels	Ea	14			
Total Bill 20						

Bill 21: 5-Yearly Deluge Flow Control Valve Overhaul:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
21	5-Yearly Deluge Flow Control Valve Overhaul intervals For the overhaul of deluge flow control valves inclusive of all supervision, labour, spares, accommodation, living out allowance and traveling costs of:					
21.1	Deluge Valves	Ea	13			
Total Bill 21						

Bill 22: 5-Yearly Deluge/Foam Flow Control Valve Overhaul:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
22	5-Yearly Deluge Foam Flow Control Valve Overhaul intervals For the overhaul of deluge/foam flow control valves inclusive of all supervision, spares labour, accommodation, living out allowance and traveling costs of:					
22.1	Deluge/Foam Valves	Ea	8			
Total Bill 22						

Bill 23: 5-Yearly Sprinkler Flow Control Valve Overhaul:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
23	5-Yearly Sprinkler Flow Control Valve Overhaul intervals For the overhaul of sprinkler flow control valves inclusive of all supervision, labour, spares, accommodation, living out allowance and traveling costs of:					
23.1	Sprinkler Flow Control Valve	Ea	3			
Total Bill 23						

Bill 24: 5-Yearly Fire Shut-off Valve Overhaul:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
24	5-Yearly Fire Shut-off Valve Overhaul intervals For the overhaul of lubricating and hydraulic oil shut-off valves inclusive of all supervision, labour, spares, accommodation, living out allowance and traveling costs of:					
24.1	Shut-off Valves	Ea	3			
Total Bill 24						

Bill 25: 5-Yearly Overhaul Store Building Fire Pump and Driver and conduct Shop Performance Test:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
25	5-Yearly Overhaul Store Building Fire Pump and Driver intervals For the overhaul and performance test of Store Building Fire Pump and Driver and Performance Test inclusive of all supervision, labour, spares, accommodation, living out allowance and traveling costs of:					
25.1	Store Building Fire Pump	Ea	1			
25.2	Store Building Fire Pump Motor	Ea	1			
Total Bill 25						

Bill 26: 5-Yearly Perform Non-destructive Testing (X-Ray) on Fire Piping and Welds:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
26	5-Yearly Non-destructive Testing (X-Ray) intervals For the Non-destructive Testing (X-Ray) of fire piping and welds inclusive of all supervision, labour, accommodation, living out allowance and traveling costs of:					
26.1	Main Fire Water Supply Line 200NB					
26.1.1	Section of piping and welds between Draft Tube Take-off and Valve 00SGA10AA501	Ea	1			
Total Bill 26						

Bill 27: As required hydrostatic pressure testing of gaseous fire protection cylinders:						
Item nr	Description	Unit	Expected Quantity	Rate	Price for Year 1	Total for 60 months
27	As required Hydrostatic Pressure Test intervals For the hydrostatic pressure testing of gaseous fire protection cylinders inclusive of all supervision, labour, accommodation, living out allowance and traveling costs of:					
27.1	Equipment Room Gaseous Fire Protection System					
27.1.1	300Bar Envirogen Cylinders	Ea	8			
27.2	Communications Room Gaseous Fire Protection System					
27.2.1	300Bar Envirogen Cylinders	Ea	2			
Total Bill 27						

Bill 28: Reactive Maintenance							
Bill 28.1: Weld Repair and Fabrication:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.1	Weld Repair and Fabrication intervals For the Weld Repair and Fabrication Intervals inclusive of all supervision, labour, accommodation, living out allowance and traveling costs:						
28.1.1	Supervisor	Ea	1	15			
28.1.2	Safety Officer	Ea	1	15			
28.1.3	Coded Welder	Ea	1	15			
28.1.4	Pipe Fabricator	Ea	2	15			
28.1.5	Maintenance Assistant	Ea	1	15			
28.1.6	Travelling Cost	km					
28.1.7	Accommodation	Ea		15			
28.1.8	Living Out	Ea		15			
Total Bill 28.1							

Bill 28.2: Corrosion Protection:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.2	Corrosion Protection intervals For the sandblasting and hot-dip galvanising intervals inclusive of transport and corrosion protection:	Ea					
28.2.1	Transport of components	Ea	10				
28.2.2	Sandblasting	kg	500				
28.2.3	Hot-dip galvanising	kg	800				
Total Bill 28.2							

Bill 28.3: Non-destructive Testing of Welds:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.3	Non-destructive Testing (Dye Pen) intervals For the Dye Penetrant Examination intervals inclusive of labour, accommodation, living out allowance and travelling costs:						
28.3.1	Technician	Ea	1	10			
28.3.2	Maintenance Assistant	Ea	1	10			
28.3.3	Travelling Cost x 2	km					
28.3.4	Accommodation	Ea	2	10			
28.3.5	Living Out	Ea	2	10			
Total Bill 28.3							

Bill 28.4: Repair of Fire Doors:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.4	Repair of Fire Doors intervals For the Repair of Fire Door Intervals inclusive of all supervision, labour, accommodation, living out allowance and traveling costs:						
28.4.1	Supervisor	Ea	1	5			
28.4.3	Safety Officer	Ea	1	5			
28.4.4	Technician	Ea	1	5			
28.4.5	Maintenance Assistant	Ea	1	5			
28.4.6	Travelling Cost	km					
28.4.7	Accommodation	Ea		5			
28.4.8	Living Out	Ea		5			
Total Bill 28.4							

Bill 28.5: Repair of Leaks on Foam Systems:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.5	Repair of Foam System Leak intervals For the Repair of Foam System Leak Intervals inclusive of all supervision, labour, accommodation, living out allowance and traveling costs:						
28.5.1	Technician	Ea	2	5			
28.5.2	Travelling Cost	km					
28.5.3	Accommodation	Ea	2	5			
28.5.4	Living Out	Ea	2	5			
Total Bill 28.5							

Bill 28.6a: Annual Replacement of Fire Doors:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.6a	Replacement of Fire Doors intervals For the Replacement of Fire Door Intervals inclusive of all supervision, labour, materials, accommodation, living out allowance and traveling costs:						
28.6a.1	Single Leaf Class D Fire Door Assembly	Ea	10				
28.6a.2	Double Leaf Class D Fire Door Assembly	Ea	10				
28.6a.3	Supervisor	Ea	2	20			
28.6a.4	Safety Officer	Ea	1	20			
28.6a.5	Semi-skilled Worker	Ea	2	20			
28.6a.6	Assistant	Ea	2	20			
28.6a.7	Travelling Cost	km					
28.6a.8	Accommodation	Ea		20			
28.6a.9	Living Out	Ea		20			
28.6a.10	Delivery of Materials	Ea	1				
Total Bill 28.6a							

Bill 28.6b: Once-off Replacement of Fire Doors:					
No	Doors	UOM	Qty	Unit Selling	Total
1	Door D23/40			Equipment Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
2	Door D23/39			Equipment Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
3	Door D16/35			Equipment Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
4	Door D16/34			Lift Lobby	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
5	Door D20/32			Comms Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
6	Door D21/33			A/C Plant Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
7	Door D9			MV Switchgear Room Machine Hall	

	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
					Total
8	Door D9			MV Switchgear Room DC	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
					Total
9	Door D9			MV Switchgear Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
					Total
10	Door D18/6			LV Switchgear Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
					Total
11	Door D5/5			LV Switchgear Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
					Total
12	Door D17/7			Machine Hall Exit to Lift Shaft Area	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
					Total
13	Door D15/9			Machine Hall Exit to Lift Shaft Area	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		

	Paint Work Material	Lot	1		
				Total	
14	Door D4/4			Cable Spreading Area	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
15	Door D3/3			Escape Route from Drainage Gallery via Lift Shaft	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
16	Door D2/2			Battery Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
17	Door D1/1			Stairway leading to Dry Transformers	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
18	Door D10/22			Distribution Switchgear Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
19	Door D9/23			Drainage & Dewatering Panel Room	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
				Total	
20	Door D9/22			Distribution Transformer 1	

	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
					Total
21	Door D9/25			Distribution Transformer 2	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
					Total
22	Door D9/25A			Distribution Transformer 3	
	Supply of Door, Frame & Ironmongery	Each	1		
	Removal of Existing Doors & Frames	Lot	1		
	Building Work Material	Lot	1		
	Plaster Work Material	Lot	1		
	Paint Work Material	Lot	1		
					Total
23	Labour				
	Site Manager	Hours	352		
	Safety Officer	Hours	352		
	Supervisor 1	Hours	352		
	Supervisor 2	Hours	352		
	Semi Skilled Labour 1	Hours	352		
	Semi Skilled Labour 2	Hours	352		
	Semi Skilled Labour 3	Hours	352		
	Semi Skilled Labour 4	Hours	352		
	Local Labour 1	Hours	352		
	Local Labour 2	Hours	352		
	Local Labour 3	Hours	352		
	Local Labour 4	Hours	352		
	Local Labour 5	Hours	352		
	Local Labour 6	Hours	352		
					Total
24	P & G's				
	Accommodation	Each	44		
	Living Out	Each	44		
	Travelling	km	9600		
	Local Labour Travelling	Each	6		
	Delivery of Materials	Lot	1		
					TOTAL EXCLUDING VAT

Bill 28.7: Repair of Fire Stops and Intumescent Coatings:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.7	Repair of Fire Stops and Intumescent Coating intervals For the Repair of Fire Stops and Intumescent Coating Intervals inclusive of all supervision, labour, accommodation, living out allowance and traveling costs:	Ea					
28.7.1	Supervisor	Ea	1	10			
28.7.2	Safety Officer	Ea	1	10			
28.7.3	Technician	Ea	2	10			
28.7.4	Semi-Skilled	Ea	2	10			
28.7.5	Travelling Cost	km					
28.7.6	Accommodation	Ea		10			
28.7.7	Living Out	Ea		10			
Total Bill 28.7							

Bill 28.8: Disposal of Fire Equipment:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.8	Disposal of Fire Equipment intervals For the Disposal of Fire Equipment Intervals inclusive of all supervision, labour, accommodation, living out allowance and traveling costs:						
28.8.1	Transport of Materials	Ea	1				
28.8.2	Technician	Ea	1	2			
28.8.3	Semi-Skilled	Ea	1	2			
28.8.4	Safety Officer	Ea	1	2			
28.8.5	Travelling Cost	km					
28.8.6	Accommodation	Ea		2			
28.8.7	Living Out	Ea		2			
Total Bill 28.8							

Bill 28.9: Undefined Spares:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.9	Undefined Spares intervals For the Supply of Undefined Spares Intervals inclusive of all materials and delivery costs:						
28.9.1	Transport of Materials	Ea	5				
28.9.2	Spares	Ea	1				
Total Bill 28.9							

Bill 28.10: Call Outs / Defects:							
Item nr	Description	Unit	Expected Quantity	Days	Rate	Price for Year 1	Total for 60 months
28.10	Call Outs and Defects intervals For Call Outs and Defects Intervals inclusive of all labour, accommodation, living out allowance and travelling costs:						
28.10.1	Supervisor	Ea	1	10			
28.10.2	Safety Officer	Ea	1	10			
28.10.2	Technician	Ea	2	10			
28.10.3	Semi-skilled	Ea	2	10			
28.10.4	Accommodation	Ea		10			
28.10.5	Travelling Cost x 3	km					
28.10.6	Living Out	Ea		10			
Total Bill 28.10							

Bill 29: Spares:				
Item nr	Description	Unit	Expected Quantity	Total
29	For the supply of the following spares:			
29.1	Pyrosafe WB Water Based Intumescent Fire-Retardent Coating. Mandoval	25L	6	
29.2	Mineral Wool Panel, Size 1200mm x 600mm x 50mm Fibrous Insulation Wool Panel, Type Mandoval	5 pack	20	
29.3	TEKROK "S" Plaster, Type Mandoval	15kg	10	
29.4	Diaphragm for 150NB Floval Automatic Deluge Valve	Ea	16	
29.5	Diaphragm for 100NB Floval Automatic Deluge Valve	Ea	12	
29.6	Diaphragm for 50NB Floval Automatic Deluge Valve	Ea	2	
29.7	100NB TYCO Automatic Sprinkler Alarm Valve Wet Kit, Type AV-1-300 Spare Wet Kit Alarm 4" (100 NB)	Ea	4	
29.8	100NB Mather & Platt Automatic Deluge Valve Spares Kit,	Ea	14	
29.9	80NB Mather & Platt Automatic Deluge Valve Spares Kit,	Ea	2	
29.10	15mm TYCO Brass Standard Response Upright Sprinklers (68 Degree C, K-5.6 Factor	Ea	36	
29.11	15mm TYCO Brass Standard Response Pendant Sprinklers (68 Degree C, K-5.6 Factor	Ea	20	
29.12	2/2 Way Solenoid Valve with Servo Diaphragm and Pivoted Armature Pilot Control, Burkert	Ea	15	
29.13	3/2 Way Solenoid Valve with Pivoted Armature Pilot Control, Burkert	Ea	15	
29.14	Firefighting Foam Concentrate, FOMTEC FP3% Fluoro-protein foam concentrate	L	3000	
29.15	Elomatic Actuator, Type F0100M, Serial No. 395601004, PED Group 2, Max Pressure 8 Bar, Temperature Range - 20Degree Celsius to 75Degree Celcius	Ea	10	
29.16	DN 50 PN 20 Butterfly Valve, Type: PALVALVE, Figure No.: 2556PY, Body: CF8M, Disc: 316, Stem: 316	Ea	10	
29.15	150NB PN16 Wedge Gate Valve, AVK Type 26/00, Ductile Iron, Flange Drilling in accordance with BS 4502	Ea	10	
29.16	100NB PN16 Wedge Gate Valve, AVK Type 26/00, Ductile Iron, Flange Drilling in accordance with BS 4502	Ea	10	
29.17	80NB PN16 Wedge Gate Valve, AVK Type 26/00, Ductile Iron, Flange Drilling in accordance with BS 4502	Ea	10	
29.18	100mm Diameter Pressure Gauge (glycerin filled), Range 0-1600 kPa, Wika, Stainless Steel	Ea	30	
29.19	Model 1224 Automatic Threading Machine, Type RIGID complete with Steel Cabinet Stand, Compatible for pipe sizes ¼ inch to 4 inch, 220 Volts, Frequency 50Hz, 8 Amps, 1700 Watts, 36/12 RPM, with foot safety switch.	Ea	1	
29.20	Die Head, Model 711, Universal Self-Opening R.H. NPT, ¼-2 inch	Ea	1	

29.21	Die Head, Model 911, Universal Self-Opening R.H. BSPT, ¼-2 inch	Ea	1	
29.22	Die Head, Model 714, Receding Self-Opening R.H. NPT, 2 ½ - 4 inch	Ea	1	
29.23	Die Head, Model 914, Receding Self-Opening R.H. BSPT, 2 ½ - 4 inch	Ea	1	
29.24	¼ - 4 inch Wheel Type Cutter	Ea	1	
29.25	¼ - 4 inch Blade Type Reamer	Ea	1	
29.26	1224 H.S. Dies NPT, 2 ½ - 4 Inch	Ea	1	
29.27	1224 H.S. Dies BSPT, 2 ½ - 4 Inch	Ea	1	
29.28	Flowmaster 250 Hydrant Flow Gauge, Type Vernon Morris, 12V DC, 2.4Ah, Working Pressure 16 bar, Max Pressure 25 bar, Inlet 2 ½ Inch Male Instantaneous, Outlet 2 ½ Inch Female Instantaneous, Supplied with gate valve assembly for static pressure readings	Ea	1	
29.29	Spirax Sarco ½ Inch Fig 12 brass strainer with screwed BSP connection and stainless steel screen having 0.8mm perforations.	Ea	20	
29.30	40NB Elbow, Threaded ends, BSP, Stainless Steel 316, 150lb	Ea	20	
29.31	40NB Socket, Threaded ends, BSP, Stainless Steel 316, 150lb	Ea	20	
29.32	40NB Barrel Nipple, Threaded ends, BSP, Stainless Steel 316, 150lb	Ea	20	
29.33	40NB Hexagon Nipple, Threaded ends, BSP, Stainless Steel 316, 150lb	Ea	20	
29.34	40NB Equal Tee, Threaded ends, BSP, Stainless Steel 316, 150lb	Ea	20	
29.35	40NB Union, Threaded ends, BSP, Stainless Steel 316, 150lb	Ea	20	
29.36	40NB Ball Valve, Threaded ends, BSP, Stainless Steel 316, 150lb	Ea	20	
29.37	40NB Pipe, Schedule 40, Stainless Steel 316	M	30	
29.38	Elcometer MTG8BDL Ultrasonic Material Thickness Gauge	Ea	1	
29.39	TXC5M00CP-10 Dual Element Transducer – ThruPaint, 5MHz, ¼ Inch, Right angle	Ea	1	
29.40	Fuji Ultrasonic Portable Flow Meter, Portaflow, Model FSCS10B1-00Y, complete with power adaptor and power cord, sensor set for pipe diameters 50mm – 1200mm, coax cables, carry case.	Ea	1	
29.41	Fuji Standard Sensor Set for Portable Ultrasonic Flow Meter, Portaflow-C Model FSSC1YY1-YY for pipe diameters 50mm – 1200mm	Ea	1	
29.42	150NB PN25 Flow Control Valve, Type: Floval, Flanged Ends, Ductile Iron, Natural Rubber	Ea	5	
29.43	100NB PN25 Flow Control Valve, Type: Floval, Flanged Ends, Ductile Iron, Natural Rubber	Ea	5	
29.44	50NB PN20 Flow Control Valve, Type: Floval, Threaded Ends, Ductile Iron, Natural Rubber	Ea	2	
29.45	C-TEC EP203, 3 Zone Fire Control Panel	Ea	3	
29.46	Remote Status Unit, EP210S, Surface Mounting, CTEC	Ea	5	
29.47	Gas Release Interface Unit for Envirogen Gaseous Suppression	Ea	10	

	System - Brigit			
29.48	Pressure Monitor for Envirogen 300Bar Cylinders - Brigit	Ea	10	
29.49	Potter Pressure Switch, Model PS10-2, FM Approved	Ea	4	
29.50	100mm VSR-EU Potter Flow Switch, FM Approved	Ea	4	
29.51	24V 5A EN5404/A2 Boxed PSU 17Ah Max, CTEC	Ea	8	
29.52	High voltage Relay, FINDER – BRIGIT Fire Relay, BRS-Cyl-110-011	Ea	4	
29.53	50NB Cast Steel Class #150 Fire Shut-off Ball Valve, Threaded Ends with Electric Actuator "NA" Series, NOAH, Model SA-005, 5kgf-m, 15W 1.8A, 24VDC, Serial Number BJ2116224	Ea	3	
29.54	80NB Cast Steel Class #150 Fire Shut-off Ball Valve, Flanged, BS4504 Table 16, with Electric Actuator "NA" Series, NOAH, Model SA-05L	Ea	3	
29.55	4 Inch Monitored Gear Operated Butterfly Valve (FM/UL Approved), TYCO Model BFV-300	Ea	3	
29.56	25mm Lockable Full bore Ball Valve, FM Approved, Cast Steel, Class #150	Ea	3	
29.57	Plate Fire Door Holder, 800 x 600 mm, Fire Door Holder, GF-DM500-24, Technoswitch	Ea	10	
29.58	KSB Pump Type WKLn 32/3Na, 2825 LPM, 62 m Head, 2.4kW	Ea	2	
29.59	Squirrel Cage Motor, 3ph 50Hz, 4.8 kW, 2800 rpm, 8.2 A, Frame DX112M, Mount B3, IP55, Delta Connection	Ea	2	
29.60	Delivery of spares to Drakensberg	Ea	1	
Total Bill 29				

SUMMARY

Item Nr	Description	Price
1	Bill No 1 - Preliminary	
2	Bill No 2 – Monthly inspect gaseous fire protection systems	
3	Bill No 3 – 6-Monthly inspect gaseous fire protection systems	
4	Bill No 4 – 6-Monthly inspect fire doors	
5	Bill No 5 – 6-Monthly inspection of fire reticulation mains	
6	Bill No 6 – Yearly maintenance of manual fire protection systems	
7	Bill No 7– Yearly inspection of fire stopping & intumescent coatings	
8	Bill No 8 – Yearly service of gaseous fire protection systems	
9	Bill No 9 – Yearly functional test of gaseous fire protection systems	
10	Bill No 10 – Yearly integrity testing of gaseous fire protection systems	
11	Bill No 11 – Yearly sampling & testing of foam storage systems	
12	Bill No 12 – Yearly water supply proving test on hydrants	
13	Bill No 13 – Yearly inspection & performance test of stores fire pump	
14	Bill No 14 – Yearly inspection & functional test of fire dampers	
15	Bill No 15 – Yearly servicing of SCBA Sets	
16	Bill No 16 – Yearly inspect foam systems	
17	Bill No 17 – 2-Yearly internal inspection of SCBA Sets	
18	Bill No 18 – 3-Yearly hydrostatic pressure testing of gaseous fire protection flexible hoses.	
19	Bill No 19 – 4-Yearly hydrostatic pressure testing of SCBA Sets	
20	Bill No 20 – 5-Yearly extended maintenance overhaul and hydrostatic pressure testing of fire extinguishers, hydrant hoses and hose reels	
21	Bill No 21 – 5-Yearly Deluge Flow Control Valve Overhaul	
22	Bill No 22 – 5-Yearly Deluge/Foam Flow Control Valve Overhaul	
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1. Description of the service

1.1. Executive overview

Drakensberg Pumped Storage Power Station has a nominal generating capacity of 1000MW which is produced from four 250MW Francis type vertical turbine generator sets. The power station is situated underground, in the Northern Drakensberg Mountains in KwaZulu-Natal, approximately 30km from the town of Bergville. Its four units were commissioned between 1979 and 1981.

The GPS Coordinates for the site are as follows:

-28.56468 (Latitude), 29.08408 (Longitude)

This contract makes provision for routine and non-routine maintenance of the fire protection systems at Drakensberg Power Station to ensure reliable operation of the site fire protection systems. The routine maintenance includes regular inspection, servicing and testing of the identified fire protection systems and non-routine maintenance involves service calls that are defined as maintenance and repair work requirements.

This contract constitutes a 5-year agreement that makes provision for the supply of labour, equipment and materials, parts, supervision and transportation necessary to maintain the fire protection systems at Drakensberg Power Station in a serviceable condition as required by the relevant fire codes, regulations and standards.

This contract is managed by a SAQCC-Fire Registered *Contractor* who submits detailed reports following the inspection, servicing and testing of the fire protection systems.

1.2. Employer's requirements for the service

The scope of supply includes the following:

- a) Make provision for the supply of labour, equipment and materials, parts, supervision and transportation for the completion of the services.
- b) The services are managed by a SAQCC Fire Registered *Contractor* and the relevant resources that will perform the services have valid SAQCC Fire registration . Proof of SAQCC Fire registration for the relevant resources is submitted to the *Service Manager*. They are to be a Service Technician (SANS 1475), Fire Detection Installer and Commissioner (SANS 10139), Fire Spinkler Servicing Technician (SANS 10287) or Automatic Sprinkler Inspection Bureau (ASIB) and Gaseous Fire Protection Installer and Commissioner (SANS 14520).
- c) The *Contractor* submits detailed reports on the completion of inspections, servicing, maintenance and tests for the respective components covered during each service period and also for all the service calls that are attended to.
- d) The *Contractor* provides certification on completion of inspections, servicing, and tests.
- e) Where applicable the *Contractor* supplies, third-party test certificates for all material used for installation and repairs.
- f) Material and dimensional certificates are supplied where required.
- g) The *Contractor* is responsible for the supply of PPE (Personal Protective Equipment) to their own personnel working on site.
- h) Supply safety file prior to start of the services, allowing for enough time to be reviewed by the *Employer*.

The following is a summary of the tasks on the fire protection system:

Task	Equipment	Frequency
Inspection, fault-finding and evaluation of Active Fire Protection Systems	Gaseous Fire Protection Systems	Monthly
Inspection of Gaseous Fire Protection Systems	Gaseous Fire Protection Systems	6-Monthly

Inspection of Fire Doors	Fire Doors	6-Monthly
Inspection of Fire Reticulation Mains	Fire Reticulation Mains	6-Monthly
Maintenance of Fire Equipment	Fire Extinguishers, Hydrants, Hose Reels	Yearly
Inspection of Fire Stopping & Intumescent Coating	Penetrations and Cables	Yearly
Inspection of Gaseous Fire Protection systems	Gaseous Fire Protection Systems	Yearly
Functional Testing	Gaseous Fire Protection Systems	Yearly
Integrity Testing	Gaseous Fire Protection Systems	Yearly
Foam Sampling & Testing	Foam Storage Systems	Yearly
Water Supply Proving Test	Remote Hydrants	Yearly
Inspection and Performance Testing	Store Fire Pump	Yearly
Inspection & Functional Testing of Fire Dampers	Fire Dampers	Yearly
Servicing of Self-Contained Breathing Apparatus	Self-Contained Breathing Apparatus	Yearly
Inspection	Foam Storage Systems	Yearly
Internal Inspection and Service	Self-Contained Breathing Apparatus	2-Yearly
Hydrostatic Pressure Testing	Gaseous Fire Suppression Hoses	3-Yearly
Hydrostatic Pressure Testing	Self-Contained Breathing Apparatus	4-Yearly
Extended Maintenance, Overhaul and Hydrostatic Pressure Testing	Fire Extinguishers, Hydrant Hoses & Hose Reels	5-Yearly
Overhaul Deluge Flow Control Valves	Deluge & Foam Control Valves	5-Yearly
Overhaul of Sprinkler Flow Control Valves	Sprinkler Flow Control Valves	5-Yearly
Overhaul of Fire Shut-off Valves	Fire Shut-off Valves	5-Yearly
Overhaul Store Building Fire Pump and Driver	Store Building Fire Pump	5-Yearly
Non-Destructive Testing (X-Ray) on Fire Piping and Welds	Fire Reticulation Mains	5-Yearly
Hydrostatic Pressure Testing	Gaseous Fire Suppression Cylinders	As required

All *services* performed on site at the Power Station premises are in accordance with the *Employers* approved procedures and instructions.

Where there is any uncertainty, discrepancy, or conflict between the Employer's Scope of Work and the applicable SANS procedures or requirements, the SANS procedures and requirements shall take precedence and be followed.

The *Service Manager* issues for each *service* a Preventative Maintenance (PM) Work Order for to the *Contractor* to fill in and complete and attached relevant *service* reports on completion of the respective *service*.

Any anomalies that are noticed during the execution of the *services* are recorded and brought to the *Service Manager's* attention immediately.

The scope of work consists of, but is not limited to, the following activities:

1.One (1) Monthly

A. Perform Inspection, Fault-finding and Evaluation of Gaseous Fire Protection Systems

- 1) The Gaseous Fire Suppression Systems for the power station as detailed below are subjected to monthly inspection. These areas and systems include:
 - Equipment Room – Total Flooding Envirogen Gaseous Suppression System
 - Communications Room – Total Flooding Envirogen Gaseous Suppression System
- 2) Check that all warning signs for the protective area and gas cylinder cages are in place, readable and not damaged.
- 3) Check that the gas cylinder cages are accessible and not exposed to moisture. Check for sign of corrosion on the cage.
- 4) Check the gas cylinders for signs of damage and corrosion. Check that the cylinders are secure in the cage and free from damage and corrosion that could affect integrity of the cylinders.

- 5) Inspect and record each container pressure against its serial number. Check that any pressure loss in a cylinder is not greater than 10% of the nominal charge pressure.
- 6) Inspect the condition of the discharge hoses and verify that all hoses are connected properly. Visually assess the hoses for signs of structural problems, abrasion and weathering.
- 7) Check that all pressure switches and actuators are in place and connected.
- 8) Check that all pull pins that could affect normal operation are removed.
- 9) Check piping and nozzles and make sure that all pipework is secure, and nozzles are in place and unobstructed.
- 10) Inspect the fire protected area and make sure that no penetrations have been altered, doors or dampers that are in the incorrect position that could negatively affect containment of the suppression medium.
- 11) Check the splitter box and verify that all equipment like power supplies, interface relays and I/O units are working correctly.
- 12) Check that the detectors, manual call points and sounders are free of debris and that no damage exist.
- 13) The following equipment on the Envirogen Fire Protection System is subjected to inspection, fault-finding, servicing, repair and clearance of any standing faults, disabled devices and alarms:
 - Equipment Room C-TEC Fire Control Panel
 - Equipment Room Remote Status Unit 1 (RSU 1)
 - Equipment Room Remote Status Unit 2 (RSU 2)
 - Equipment Room Remote Status Unit 3 (RSU 3)
 - Communications Room C-TEC Fire Control Panel
 - Communications Room Remote Status Unit 1 (RSU 1)
 - a. Before start of any work, obtain the status condition of all the Gas Control Panels and Remote Status Units in the Equipment and Communications Rooms, record the status condition of all panels, record faulty device reference numbers, zones and the specific fault detail that are evident on the panels. The status condition before and after work is submitted in a detailed report to the *Employer*.
 - b. Check the Remote Status Units for any faults and record the as found operational state of the unit if in auto or manual mode.
 - c. Ensure that the systems are properly isolated by means of the solenoid plugs that are disconnected from the cylinder banks to prevent accidental release of gas during fault-finding practices.
 - d. Perform fault-finding on the Gas Control Systems that have standing faults and alarms to determine the cause of the faults and the alarms.
 - e. Proceed by clearing any standing faults and alarms.
 - f. Liaise with the *Service Manager* on the required spares and the action to be taken to clear any faults that need replacement of spare items.
 - g. Restore the systems to normal operation after fault-finding practices.
- 14) The outcome of the monthly inspection, fault-finding, servicing & repair and clearance of any standing faults and alarms on the Envirogen Gas Control Systems are captured in a detailed report that are submitted to the *Employer*. This report at a minimum contains the findings of the inspection, referenced the faulty devices with the specific device number, causes of the faults, action taken to clear the faults, servicing and any recommendations that may transpire from the *service*.

2 Six (6) Monthly

A. Perform Inspection of Gaseous Fire Protection Systems

- 1) The Gaseous Fire Suppression Systems for the power station as detailed below are subjected to 6-monthly inspection. These areas and systems include:
 - Equipment Room – Total Flooding Envirogen Gaseous Suppression System
 - Communications Room – Total Flooding Envirogen Gaseous Suppression System
- 2) Visually inspect panels and components for any signs of moisture ingress, damage, deterioration or any abnormalities.
- 3) Examine batteries and their connections. Test batteries and determine if replacement is required or if batteries are still in good condition. Check if the battery replacement date will be passed before the next service and if so, replace the battery. The age of the battery should be marked on it with a label. Sealed lead acid batteries should be replaced at least every 2 years.

- 4) Survey the fire protected area to determine if any changes have taken place to the enclosure since the original design that could affect the holding capacity of the gas. Any changes such as cable penetrations that have been disturbed, will require an integrity test to be carried out to verify the hold down time of the room.
- 5) Check the condition of all protection and warning devices for excessive deposition of dust or coating of paint that could adversely affect their function.
- 6) Check that all protection devices are spaced and located in accordance with the approved design.
- 7) Check the integrity of all pneumatic piping and fittings for the following:
 - Missing pipe brackets
 - Loose pipe supports
 - Sagging pipework
 - Perished flexible hoses
- 8) Check that all pipework, flexible connectors and manifolds are free from damage and that it is adequately supported.
- 9) Check that all nozzles are unobstructed and correctly aimed and secure.
- 10) Check that all non-return valves are correctly orientated.
- 11) Check that all dampers and fire doors are in the correct position.
- 12) The outcome of the 6-monthly inspection is captured in a detailed report that is submitted to the *Employer*.

B. Perform Inspection of Fire Doors

- 1) Perform inspection of fire doors in the following areas:
 - Transformer Hall
 - Machine Hall
 - Lower Machine Hall
 - Control Block
 - Valve Hall
 - Drainage Gallery
 - Administration Surface Building
 - Surface Store Building
- 2) Each door is inspected against the following:
 - Verify if there are any conspicuous problems found with the door.
 - Assess the clearances on the door assembly.
 - Assess if the door has undergone any modifications that could affect its integrity.
 - Verify if the door and frame have any certification label attached to it and what rating the assembly has.
 - Verify if the door latches properly and if it is equipped with a self-closing mechanism.
 - Verify if the construction around the frame is solid without any openings.
 - Assess if the door is of solid construction.
 - Check if hinges are properly attached.
 - Check the door to frame aligned and check for any sagging.
 - Check that the door operates freely, closes automatically and latches properly.
 - Check that the door and frames are not damaged.
 - A register is provided of all inspected fire doors with the area, certification number, door number, type and as-found condition recorded.
- 3) For replacement of any fire door assemblies or components, liaise with the *Service Manager* on the required spares and the action to be taken for replacement.

C. Perform Inspection of Fire Reticulation Mains

- 1) The fire water reticulation mains for the underground and aboveground areas are subjected to inspection and measurement.
- 2) Visually inspect the external surfaces of the fire mains for the underground (powerhouse) and aboveground (admin building and stores) areas for any sign of damage and corrosion. Pipe-work, supports and valves must be free from corrosion and damage.
- 3) Check for any signs of leakage.

- 4) Check that the pipework is properly supported.
- 5) Check that protective coatings are in place and sound.
- 6) Check that piping layouts conform to site drawings and documentation.
- 7) Use an approved pipe wall thickness tester to measure and record pipe wall thicknesses at various identified points. It is preferred that measurements are taken without disturbance to the coating.
- 8) Repeated measurements are taken in the exact original positions as previous recorded measurements to obtain an understanding of the degradation of the piping and to create a map of the pipe layout.
- 9) The recorded measurements together with a drawing is captured in a detailed report that is submitted to the *Employer*.

3 One (1) Yearly

A. Perform Maintenance of Fire Extinguishers

- 1) Yearly maintenance of fire extinguishers comprises of the following activities:
 - All extinguishers shall be properly cleaned and free of any dirt, grease or foreign material before inspection and service.
 - Extinguishers shall be carefully inspected for any rust, corrosion, dents, pitting or any other damage or wear.
 - Inspection for any damaged, missing or substituted parts shall be carried out.
 - Check for test and maintenance/service dates and determine if the extinguisher is due for hydrostatic pressure testing.
 - Check that the operating instructions on the extinguishers are readable and correct.
 - Inspect the pressure gauge indicator to determine if it is within operable range, if the correct gauge is installed and that there is no evidence of leakage.
 - Weigh each extinguisher to ensure adequate extinguishing agent is present. Top up or recharge extinguishers as required.
 - Remove pull pin / ring pin to check for free movement. Replace if bent or removal appears to be difficult and replace tamper seal.
 - Remove the discharge hoses and nozzles for inspection. Ensure nozzles and hoses are fit for use, unobstructed, not cracked or worn. Clean and renew where necessary.
 - Inspection and check lever / handle for smooth operation and movement and also inspect for damage. Clean, rectify and renew where necessary.
 - Renew all seals, diaphragms and washers as required during the service.
 - Complete and attach service tags / labels to extinguishers and record all information on data sheets.
 - Over and above the service tag / label for the yearly service also fit a tag / label to ensure that the local fire warden can capture the detail of the monthly in-house inspection. The label must contain the following information namely: Date, Service Type, Name & Signature. The tag / label must allow for monthly recording of information between last and next extinguisher service dates.
 - Submit service certificates.
 - Ensure that any extinguisher that is removed from its location for examination and hydrostatic testing, is replaced with another temporary extinguisher that conforms to the following requirements:
 - Extinguishers shall be uniquely identified, labelled and kept on a register which shall be submitted to the *employer*.
 - Safety seals and tampering devices/indicators are not broken or missing.
 - Extinguishing agent quantity is adequate, as determined by weighing or lifting.
 - Pressure gauge or indicator is within the operable range or position (green).
 - No obvious physical damage, corrosion, leakage or clogged nozzle exists.
 - Hose and nozzle are in a good condition.

- Temporary extinguishers have the necessary certification, and it is produced on delivery of temporary extinguishers.

B. Perform Maintenance of Fire Hydrants

1) Yearly maintenance of fire hydrants comprises of the following activities:

- Visually inspect the hydrant valve, standpipe and respective isolating valves (where applicable) for any signs of leakage or damage.
- Check that all hydrant valves are accessible, hand-wheels are securely fitted and that blanking caps are in good condition and in place (where applicable).
- Check and inspect all seals and washers. Replace as necessary.
- Inspect hydrant standpipes for signs of corrosion, damage or leaks.
- Check that all hydrant cabinets are clearly marked and in good condition, accessible and contains only the necessary equipment.
- Hydrant Hoses:
 - Check all branch pipes, nozzles and hose couplings are in good condition, compatible with the hydrant valves and properly stowed.
 - Unwound hydrant hose and inspect the entire hose for any cracks, cuts, leaks, wear and any other damage.
 - If any anomalies are found on a hose, a hydrostatic test shall be conducted on the hose in accordance with the following instructions:
 - Connect the hose to the testing device.
 - Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment.
 - Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for personal injury during application of pressure and inspection of the hose.
 - Fill the hose completely with water by venting air from the nozzle.
 - Mark the hose at each coupling to determine if the hose slips from the coupling during the test.
 - Close the nozzle.
 - Slowly raise the pressure in the hose to the test pressure of 16 bar (gauge). Maintain the service pressure for at least 5 minutes.
 - Inspect the entire length of hose and couplings for leakage or signs of degradation.
 - Note and record any leakage.
 - Slowly remove pressure from the hose.
 - Inspect marks on the couplings to determine if the coupling has moved during the test.
 - Disconnect the hose from the testing device.
 - Drain and dry the hose.
 - Record results, including date of testing, and return the hose to storage.
 - ❖ Foam Concentrate and Loose Equipment:
 - Check that the equipment inside the cabinet is in accordance with the cabinet contents list.
 - Check that equipment items are compatible and in good condition.
 - Check that foam concentrate containers are in good condition, seals are intact and the labels are legible.
 - Check that foam concentrate levels are correct.
 - Check signage for legibility.
 - ❖ Check and ensure all components are free of damage and defects.
 - ❖ A service label must be fitted on completion of the annual service.

- ❖ Over and above the service tag / label for the yearly service of the hydrant also fit a tag / label to ensure that the local fire warden can capture the detail of the 6-monthly in-house service. The label must contain the following information namely: Date, Service Type, Name & Signature. The tag / label must allow for 6-monthly recording of information between last and next hydrant service dates.
- 2) Part of the servicing of the hydrants include the flushing of the hydrants to ensure that any debris is removed and to verify that the hydrant seals properly.
- The *Contractor* in conjunction with *Employer* identifies upfront and perform a risk assessment for flushing of the hydrants.
 - The *Contractor* performs flushing of the hydrants under direct supervision of the *Employer*.
 - The *Contractor* ensures safe and effective drainage for the water to be discharged from the supply and to prevent equipment damage. A hydrant hose can be routed to drain and secured for this purpose. The *Contractor* uses their own hose to flush the hydrants and for diverting flow away safely to drain.

C. Perform Maintenance of Hose Reels

- 1) Yearly maintenance of hose reels comprises of the following activities:
- Check that the locations of hose reels are marked up correctly on the location plan/register.
 - Check that the hose reel is readily accessible with no obstacles restricting its access.
 - Check that location signs are correctly located and visible.
 - Check that operating instructions are readable and correct.
 - Check for any damage or corrosion of components that could adversely affect the operation of the reel.
 - Check that the hose reel is securely mounted and stable. Inspect the drum and discs for any signs of corrosion and damage. Make sure the hose reel drum rotates freely in both directions.
 - Check all hoses for kinking, excessive damage or wear, or collapse.
 - If any anomalies are found on a hose, a hydrostatic test shall be conducted on the hose in accordance with the following instructions:
 - Connect the hose to the testing device.
 - Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment.
 - Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for personal injury during application of pressure and inspection of the hose.
 - Fill the hose completely with water by venting air from the nozzle.
 - Close the nozzle.
 - Slowly raise the pressure in the hose to the test pressure of 16 bar (gauge). Maintain the service pressure for at least 5 minutes.
 - Inspect the entire length of hose and couplings for leakage or signs of degradation.
 - Note and record any leakage.
 - Slowly remove pressure from the hose.
 - Disconnect the hose from the testing device.
 - Drain and dry the hose.
 - Record results, including date of testing, and return the hose to storage.
 - Make sure nozzles are in place and inspect for any blockage, cracks, defects and damage. Ensure nozzle is in a closed position.
 - Check that no unauthorized connections or tapping have been made to the hose reel water supply piping visible at the hose reel.
 - A service label is fitted to the hose reel on completion of the annual service.
 - Over and above the service tag / label for the yearly service also fit a tag / label to ensure that the local fire warden can capture the detail of the monthly

in-house inspection. The label must contain the following information namely: Date, Service Type, Name & Signature. The tag / label must allow for monthly recording of information between last and next hose reel service dates.

D. Perform Inspection of Fire Stopping and Intumescent Coatings

- 1) Yearly inspection, repair and installation of fire stops and intumescent coating comprise of the following activities:
 - Perform inspection of fire stopping of penetrations and sealing around dampers, cables and intumescent coatings on cables throughout site.
 - Conduct the inspection on existing penetrations to determine if any fire stopping is required and also assess if any penetrations that are not sealed, needs sealing.
 - A register is provided of all inspected fire breaks and cable coated areas with the labelling done correctly as per the register.
 - Liaise with the *Service Manager* on the required spares and the action to be taken to conduct fire stopping and cable coating.

E. Perform Inspection of Gaseous Fire Suppression Systems

- 1) The Gaseous Fire Suppression Systems as detailed below are subjected to yearly inspection. These areas and systems include:
 - Equipment Room – Total Flooding Envirogen Gaseous Suppression System
 - Communications Room – Total Flooding Envirogen Gaseous Suppression System
- 2) Check that all warning signs for the protective area and gas cylinder cages are in place, readable and not damaged.
- 3) Check that the gas cylinder cages are accessible and not exposed to moisture. Check for sign of corrosion on the cage.
- 4) Check the gas cylinders for signs of damage and corrosion. Check that the cylinders are secure in the cage and free from damage and corrosion that could affect integrity of the cylinders.
- 5) Inspect and record each container pressure against its serial number. Check that any pressure loss in a cylinder is not greater than 10% of the nominal charge pressure.
- 6) Inspect the condition of the discharge hoses and verify that all hoses are connected properly. Visually assess the hoses for signs of structural problems, abrasion and weathering.
- 7) Check that all pressure switches and actuators are in place and connected.
- 8) Check that all pull pins that could affect normal operation are removed.
- 9) Check piping and nozzles and make sure that all pipework is secure, and nozzles are in place and unobstructed.
- 10) Inspect the fire protected area and make sure that no penetrations have been altered, doors or dampers that are in the incorrect position that could negatively affect containment of the suppression medium.
- 11) Check that the detectors, manual call points and sounders are free of debris and that no damage exist.
- 12) The following equipment on the Envirogen Fire Protection Systems is subjected to inspection, fault-finding, servicing, repair and clearance of any standing faults, disabled devices and alarms:
 - Equipment Room C-TEC Fire Control Panel
 - Equipment Room Remote Status Unit 1 (RSU 1)
 - Equipment Room Remote Status Unit 2 (RSU 2)
 - Equipment Room Remote Status Unit 3 (RSU 3)
 - Communications Room C-TEC Fire Control Panel
 - Communications Room Remote Status Unit 1 (RSU 1)
 - a) Before start of any work, obtain the status condition of all the Gas Control Panels and Remote Status Units in the Equipment and Communications Rooms, record the status condition of all panels, record faulty device reference numbers, zones and the specific fault detail that are evident on the panels.
 - b) Check the Remote Status Units for any faults and record the as found operational state of the unit if in auto or manual mode.

- c) Ensure that the systems are properly isolated by means of the solenoid plugs that are disconnected from the cylinder banks to prevent accidental release of gas during fault-finding practises.
- d) Perform fault-finding on the Gas Control Systems that have standing faults and alarms to determine the cause of the faults and the alarms.
- e) Proceed by clearing any standing faults and alarms.
- f) Liaise with the Service Manager on the required spares and the action to be taken to clear any faults that need replacement of spare items.
- g) Restore the systems to normal operation after fault-finding practises.
- h) The outcome of the yearly inspection, fault-finding, servicing & repair and clearance of any standing faults and alarms on the Gas Control Systems are captured in a detailed report that are submitted to the *Employer*. This report at a minimum contains the findings of the inspection, referenced the faulty devices with the specific device number, causes of the faults, action taken to clear the faults, servicing and any recommendations that may transpire from the *service*.

F. Perform Functional Testing of Gaseous Fire Suppression Systems

- 1) The Gaseous Fire Suppression Systems for the power station as detailed below are subjected to Yearly functional testing. These areas and systems include:
 - Equipment Room – Total Flooding Envirogen Gaseous Suppression System
 - Communications Room – Total Flooding Envirogen Gaseous Suppression System
- 2) Prior to performing the functional testing, isolate the gas containers by disconnecting and removing the solenoids on the suppression storage cylinders to make sure that the test will not result in discharge of the gas cylinders.
- 3) Activate two detectors (one on each zone) to bring up a fire alarm Verify that the panel and all warning devices function correctly once a fire alarm is sustained.
- 4) Check that all dampers shut off properly.
- 5) Liaise with the *Service Manager* on any anomalies found during the test and the action to be taken to clear the anomalies and restore the system to normal operating state.
- 6) Fully restore the system when the test is complete and only once the fire alarm has cleared.
- 7) The outcome of the yearly functional test is captured in a detailed report that is submitted to the *Employer*.

G. Perform Integrity Testing of Gaseous Fire Suppression System Enclosures

- 1) The Gaseous Fire Suppression Systems for the power station as detailed below are subjected to Yearly integrity testing. These areas and systems include:
 - Equipment Room – Total Flooding Envirogen Gaseous Suppression System
 - Communications Room – Total Flooding Envirogen Gaseous Suppression System
- 2) Conduct integrity testing on the Equipment and Communications Rooms.
- 3) The outcome of the yearly integrity test is captured in a detailed report that is submitted to the *Employer*.

H. Perform Foam Sampling & Testing

- 1) The Foam Storage Systems for the power station as detailed below are subjected to Yearly sampling and testing. These areas and systems include:
 - Generator Motor Transformer 1 Fixed Foam Tank – 2000 Litre Fluoro Protein Foam
 - Generator Motor Transformer 2 & Service Transformer 1 Fixed Foam Tank – 2000 Litre Fluoro Protein Foam
 - Station Transformers 1&2 Fixed Foam Tank – 4000 Litre Fluoro Protein Foam.
 - Generator Motor Transformer 3 Fixed Foam Tank – 2000 Litre Fluoro Protein Foam.

- Generator Motor Transformer 4 & Service Transformer 2 Fixed Foam Tank – 2000 Litre Fluoro Protein Foam
- Portable Foam Trolleys – 120 Litre Fluoro Protein Foam

2) Yearly foam sampling of the foam storage systems comprises of the following activities:

- Obtain a foam sample from all foam storage containers and ensure that each sample that is obtained is clearly marked with respect to its respective storage container.
- Testing of the foam concentrate properties is carried out by an approved foam laboratory. Tests include:
 - foam type
 - specific gravity
 - PH
 - undissolved solids/sediment
 - drain time
 - foam expansion ratio
 - spreading coefficient – film forming foams only
 - alcohol burn back test – alcohol resistant foams only

Submit test results.

Submit certification for the foam concentrate.

I. Perform Water Supply Proving Test

1) The yearly water supply proving test on the most remote hydrant is conducted for the following areas:

- Power Station Underground Area
- Transformer Hydrants
- Surface Administration Building
- Surface Building Stores Area

2) Yearly water supply proving test comprise of the following activities:

- The water supply proving test is conducted using an approved calibrated device and the parameters that are recorded include the pressure and flow at the discharge of the hydrant.
- The pressure and flow of the hydrant in the powerhouse are recorded against the corresponding dam level indication.
- The minimum flow and pressure of the hydrant at the most remote hydraulic point is 1200 L/m and 350 kPa.
- Ensure safe and effective drainage for the water to be discharged from the supply. A hydrant hose can be routed to drain and secured for this purpose.
- Open the hydrant valve to establish flow.
- Ensure that the flow is under pressure.
- Measure and record hydrant flow and pressure with approved calibrated test device.
- Restore the hydrant station to normal condition.
- Certification, indicating the flow and pressure of the hydrant are supplied on completion of the test.

J. Perform Inspection & Performance Testing of Stores Fire Pump

1) The stores fire pump is subjected to yearly inspection and performance testing

2) Inspection of the pump comprise of the following activities:

- Conduct a visual inspection on the pump to identify any conspicuous problems.
- Check for any leakages on the flanges and mechanical seal.
- Check that the control panel is free of any debris and leak tight. Note any anomalies on the control panel.
- Check that the pump is properly protected against weather elements.
- Check the general condition of the pump and note any anomalies.

- 3) Functional testing comprises of the following activities:
 - Monitor and record the reservoir level prior to the conducting the test.
 - Manually or automatically start the pump. Automatic starting is initiated by opening a hydrant to establish flow through the line. The flow switch should activate the pump to start. Record any anomalies such as automatic start failure.
 - Operate the pump for 5 minutes.
 - While the pump is running:
 - Monitor the hydrant flow using an approved calibrated flow test device. The minimum flow and pressure of the hydrant at the most remote hydraulic point is 1200 L/min and 350 kPa.
 - Close the hydrant and stop the pump.
 - Monitor and record the reservoir level.
 - Record any anomalies.
 - Return the pump to its normal standby line-up on completion of the test.

K. Perform Inspection & Functional Testing of Fire Dampers

- 1) Inspection of fire dampers comprise of the following activities:
 - Check and ensure that the fire damper is in place, and free from obstruction.
 - Take note of and record the damper status (open/close).
 - Ensure that no obstructions exist that could interfere with free operation of the damper blades.
 - Check for signs of corrosion on the damper casing and its fusible links.
 - Where fire stopping has been fitted around the damper, inspect the condition of the fire stopping.
 - Visually check and listen for signs of leakages on the solenoid and its respective piping.
 - Visually check to ensure that fusible links are in good condition, thereby maintaining the damper in the open position.
- 2) Functional testing of fire dampers comprises of the following activities:
 - Annual functional testing of all solenoid operated fire dampers covering the power station and surface building area are carried out.
 - To verify the operation of the solenoid operated dampers, the respective fire detector in the room or area can be activated to set off the damper.
 - The dampers in the transformer hall can alternatively be activated by the operation of a manual switch.
 - For the mechanical dampers, remove or release the thermal link to ensure closure.
 - Test a representative sample of the thermal link and replace all thermal links throughout the premises if the representative sample fails.
 - Verify that the motorised dampers on the Control Room Air Handling Unit (AHU) operate correctly when the unit is switched from recirculating to fresh air mode.
 - Verify that the motorised dampers on the Surface Building Air Handling Unit (AHU) operate correctly when the unit is switched from recirculating to fresh air mode.

L. Perform Service of Self-Contained Breathing Apparatus

- 1) Yearly service of self-contained breathing apparatus comprises of the following activities:
 - Inspection is performed by an approved inspection authority from an Accredited Institution.
 - Inspection of Cylinder
 - Check to see that the cylinder pressure is correct.
 - Check that seals and hose fittings are clean and not torn.
 - Check cylinder valve knob, it should be closed hand tight.
 - Check high pressure hoses for wear and tear.
 - Check that the hydrostatic pressure test date is still valid.

- Check cylinder for corrosion, chipping and cracking.
- Inspection of Face Piece
 - Check the regulator hose for visible signs of wear, bulging and deterioration.
 - Check that all gaskets are intact.
 - Check the face piece elastomer for cracks.
 - Check that all connection areas and threads are clean.
 - Check that face piece straps are adjustable and extend fully.
 - Check to see that the lens is clean and undamaged.
 - Check head harness for torn and worn straps.
- Inspection of Harness and Backpack
 - Check to see that all straps are adjusted out fully.
 - Check harness for worn and torn areas.
 - Check backpack for damaged parts.
 - Check the cylinder straps locking device if it works properly.
 - Check that cylinder fitting seals are not cracked and that it is clean.
 - Check all buckles for damage.
 - Ensure that all straps are untwisted.
- Inspection of Regulator (Lung Demand Valve)
 - Check that bypass valve is closed and the positive pressure switch depressed.
 - Check the valve opening to see that it is free of dirt.
 - Open the cylinder valves, check and record the pressure (pressure should be greater than 270 Bar).
 - Close the cylinder valve and check pressure drop (it should not drop greater than 5 bar in one minute).
 - Slowly open the face piece mask demand valve (the whistle should sound at 60 bar).
- Inspection of SCBA Set
 - Close the demand valve at the face mask
 - Open cylinder valve fully.
 - Close the cylinder valve and check the pressure. It should not be lower than 250 bar. Check for leaks. Tighten any leaking joints.
 - Observe the pressure gauge pointer. It should remain stationary at not less than 250 bar. If pointer falls rapidly, check and tighten nuts again.
 - Put on the face mask, adjust head and harness test sealing.
 - Open demand valve at face mask and cylinder valve. Breathe in and out deeply 2-3 times, ensuring air is flowing freely from the demand valve.
 - Shut cylinder and demand valve. Remove face mask.
 - Disconnect mask from breathing tube. Wipe face mask and rubber parts with damp cloth only.
 - Record any repairs or renewals required.
- Complete and attach service tags / labels to SCBA Sets and record all information on data sheets.
- Submit service certificates.
- Over and above the service tag / label for the yearly service also fit a tag / label to ensure that the local fire warden can capture the detail of the monthly inspection. The label must contain the following information namely: Date, Service Type, Name & Signature. The tag / label must allow for monthly recording of information between last and next SCBA service dates.

M. Perform Inspection of Foam Systems

- 1) Perform inspection of the following foam systems:
 - Unit 1 Generator/Motor Transformer Foam System
 - Service Transformer 1 Foam System
 - Unit 2 Generator/Motor Transformer Foam System
 - Station Transformer 1 Foam System
 - Station Transformer 2 Foam System
 - Unit 3 Generator/Motor Transformer Foam System

- Unit 4 Generator/Motor Transformer Foam System
- 2) Each foam system is inspected against the following:
- Verify if there are any conspicuous problems found on the systems.
 - Assess for leakages on the storage tank and pipework.
 - Assess if the systems have undergone any modifications that could affect its integrity.
 - Verify the level of the storage tanks and if the level indicators are in good working condition.
 - Verify if the required foam data sheets are evident on the tanks and if the foam concentrate are still within its life expectancy date.
 - Verify if the construction around the frame is solid without any openings.
 - A detailed report of the inspection, condition of the equipment is submitted to the *Employer* after each inspection. The report must also contain any recommendations.
 - For replacement of any components on the foam systems, liaise with the *Service Manager* on the required spares and the action to be taken for replacement.

4 Two (2) Yearly

A. Perform Internal Inspection of Self-Contained Breathing Apparatus

- 1) Self-contained breathing apparatus for the power station shall be subjected to an internal inspection.
- 2) The SCBA Sets internal inspection is performed by an approved inspection authority from an Accredited Institution.
- 3) The SCBA Sets are refilled on completion of the internal inspection.
- 4) Complete and attach pressure test tags / labels to SCBA Sets stipulating last internal inspection date and the next due date.
- 5) Submit inspection reports and certificates.

5 Three (3) Yearly

A. Perform Hydrostatic Pressure Testing of Gaseous Fire Suppression System Hoses

- 1) Hydrostatic pressure testing of gaseous fire suppression system flexible hoses for Equipment and Communications Rooms Envirogen Fire Suppression Systems are carried out.
- 2) Hydrostatic pressure testing of flexible hoses is conducted in accordance with the following instructions:
 - Connect the hose to the testing device.
 - Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment.
 - Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for personal injury during application of pressure and inspection of the hose.
 - Fill the hose completely with water by venting air from the nozzle.
 - Mark the hose at each coupling to determine if the hose slips from the coupling during the test.
 - Close the nozzle
 - Slowly raise the pressure in the hose to the test pressure (1.5 x design pressure) (gauge). Maintain the service pressure for at least 5 minutes.
 - Inspect the entire length of hose and couplings for leakage or signs of degradation.
 - Note and record any leakage.
 - Slowly remove pressure from the hose.
 - Inspect marks on the couplings to determine if the coupling has moved during the test.
 - Disconnect the hose from the testing device.
 - Drain and dry the hose.

- Record results, including date of testing, and return the hose to storage.
- Submit certification.

6 Four (4) Yearly

A. Perform Hydrostatic Pressure Testing of Self-Contained Breathing Apparatus

- Self-contained breathing apparatus for the power station shall be subjected to a hydrostatic pressure test.
- Hydrostatic pressure testing is performed by an approved inspection authority from an Accredited Institution.
- Complete and attach pressure test tags / labels to SCBA Sets stipulating last pressure test date and next due date.
- Submit pressure test certificates.

7 Five (5) Yearly

A. Perform Extended Maintenance, Overhaul and Hydrostatic Pressure Testing of Fire Extinguishers

- Fire extinguishers for the power station underground area, surface building area, surface building stores area and the visitors centre are subjected to a 5-yearly hydrostatic pressure test.

Extended maintenance procedures

-
- The procedures of annual maintenance are carried out with the procedures.
- Determine whether the fire extinguisher may have been operated by checking the reading on the pressure indicating device and the status of any activation device. Depressurize if necessary and open the fire extinguisher.
- Empty all fire extinguishers, except the halon and CO2 types, ensuring that any extinguishing medium that is still within its lifespan and may be fit for reuse is emptied into a clean receptacle.
- Examine the extinguishing medium in accordance with the manufacturers' instructions and the safe working practices.
- Examine in detail for corrosion, damage, dents, gouges on
 - a) top cap and operating head assemblies,
 - b) activation and pressure indicators, and
 - c) discharge hose and nozzle.
- Examine the cylinder externally and internally in detail for corrosion, dents, cuts, gouges or lining damage. Special attention shall be given to the welds. In case of doubt about welds, follow the instructions of the manufacturer.
- Examine and check all closures for correct thread, form, size and coating.
- Return to operational condition. Reassemble and refill the fire extinguisher in accordance with the manufacturers' instructions.
- Fit new security seal and complete the maintenance label.

Overhaul procedures

- The procedures of yearly maintenance and extended maintenance are carried out with the procedures.
- Strip down completely the components of the fire extinguisher and replace all corroded or damaged components.
- Pressure test the cylinder to the specified test pressure.
- Replace or check the safety device in accordance with the manufacturers' instructions.
- Reassemble, and recharge the fire extinguisher, fit new security seal and complete the maintenance label and the pressure test label.

Extinguisher pressure test procedure

- Remove all top caps, operating head assemblies, internal parts, and hose assemblies and empty the fire extinguisher.
- Remove all traces of extinguishing mediums from inside the cylinder of all powder types of extinguishers.

- To conduct maintenance or a hydrostatic test, disconnect the regulator or low-pressure hose from the media cylinder on wheeled extinguishers equipped with a regulator(s),
- Remove the top cap or operating head assembly on all wheeled stored pressure powder extinguishers and replace with an acceptable test closure.
- Using a flexible connection, attach the hose of the hydrostatic test pump to the discharge outlet, hose assembly, test bonnet, or test fitting as is applicable. In the case of wheeled powder extinguishers, procedures and fittings should be those prescribed by the manufacturer.
- Turn on the water supply to the test pump and fill the extinguisher to the top of its collar.
- For extinguishers tested with their top caps on, tighten the cap slowly while the water supply remains open. When all the entrapped air within the cylinder has been bled off and after water emerges, tighten the cap fully.
- For extinguishers tested with a test closure or fitting, tighten the bonnet or fitting fully while the water supply remains open. When all the entrapped air within the cylinder has been bled off and after water emerges, close the vent tightly.
- Apply pressure at an even rate of pressure rise until the test pressure is reached. Maintain this pressure for at least 60 s. Make observations at this stage to note any distortions or leakages of the extinguisher cylinder.
- If no distortion or leakage is noted and if the test pressure has not dropped, release the pressure on the extinguisher cylinder.
- The extinguisher is then considered to have passed the hydrostatic test.
- Complete and attach pressure test service tag / label to extinguishers and record the information on the pressure test tag / label: *Date Last Pressure Tested, Next Pressure Test Date, Pressure Tested By.*
- Submit pressure test certificates.
- Ensure that the hydrostatic test is performed off site from the power station premises.
- Ensure that any extinguisher that is removed from its location for hydrostatic testing, is replaced with another temporary extinguisher that conforms to the following requirements:
 - Extinguishers are uniquely identified, labelled and kept on a register which is submitted to the *Employer*.
 - Safety seals and tampering devices/indicators are not broken or missing.
 - Extinguishing agent quantity is adequate, as determined by weighing or lifting.
 - Pressure gauge or indicator is within the operable range or position (green).
 - No obvious physical damage, corrosion, leakage or clogged nozzle exists.
 - Hose and nozzle are in a good condition.
 - Temporary extinguishers are in compliance with Pressure Equipment Regulations (PER) and have the necessary certification (manufacturing and pressure test certificates) and is produced on delivery of temporary extinguishers.

B. Perform Hydrostatic Pressure Testing of Hydrant Hoses

1) Hydrostatic pressure testing of hydrant hoses is conducted in accordance with the following instructions:

- Connect the hose to the testing device.
- Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment.
- Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for personal injury during application of pressure and inspection of the hose.
- Fill the hose completely with water by venting air from the nozzle.
- Mark the hose at each coupling to determine if the hose slips from the coupling during the test.
- Close the nozzle.
- Slowly raise the pressure in the hose to the test pressure of 16 bar (gauge). Maintain the service pressure for at least 5 minutes.
- Inspect the entire length of hose and couplings for leakage or signs of degradation.
- Note and record any leakage.
- Slowly remove pressure from the hose.
- Inspect marks on the couplings to determine if the coupling has moved during the test.
- Disconnect the hose from the testing device.

- Drain and dry the hose.
- Record results, including date of testing, and return the hose to storage.
- Submit certification

C. Perform Extended Maintenance, Overhaul and Hydrostatic Pressure Testing of Hose Reels

1) Hydrostatic pressure testing of hose reels is conducted in accordance with the following instructions:

- Connect the hose to the testing device.
- Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment.
- Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for personal injury during application of pressure and inspection of the hose.
- Fill the hose completely with water by venting air from the nozzle.
- Close the nozzle.
- Slowly raise the pressure in the hose to the test pressure of 16 bar (gauge). Maintain the service pressure for at least 5 minutes.

- Inspect the entire length of hose and couplings for leakage or signs of degradation.
- Note and record any leakage
- Slowly remove pressure from the hose.
- Disconnect the hose from the testing device.
- Drain and dry the hose.
- Record results, including date of testing, and return the hose to storage.
- Submit certification.

D. Perform Overhaul of Deluge Flow Control Valves

1) The deluge flow control valves on the transformer foam/water spray systems and bulk oil storage tank deluge systems are subjected to a 5-yearly internal inspection and overhaul of which the activities comprise of the following:

- Disassembly and removal of components.
- Cleaning and inspection of components.
- Renewal of the valve diaphragm.
- Renewal of valve seat and seals.
- Renewal of damaged components.
- Renewal of gaskets.
- Reassembly of the valve.
- Functional testing of the deluge valve.
- A service label must be fitted on completion of the 5-yearly service.
- Submit certification.

E. Perform Overhaul of Deluge/Foam Flow Control Valves

1) The deluge/foam flow control valves on the transformer foam/water spray systems are subjected to a 5-yearly internal inspection and overhaul of which the activities comprise of the following:

- Disassembly and removal of components.
- Cleaning and inspection of components.
- Renewal of the valve diaphragm.
- Renewal of valve seat and seals.
- Renewal of damaged components.
- Renewal of gaskets.
- Reassembly of the valve.
- Functional testing of the deluge/foam valve.
- A service label must be fitted on completion of the 5-yearly service.
- Submit certification.

F. Perform Overhaul of Sprinkler Flow Control Valves

- 1) The sprinkler flow control valve on the cable spreading room, hydraulic oil skid, lubricating oil skid sprinkler systems are subjected to a 5-yearly internal inspection and overhaul of which the activities comprise of the following:
 - Disassembly and removal of components.
 - Cleaning and inspection of components.
 - Renewal of the valve diaphragm.
 - Renewal of valve seat and seals.
 - Renewal of damaged components.
 - Renewal of gaskets.
 - Reassembly of the valve.
 - Functional testing of the sprinkler flow control valve.
 - A service label must be fitted on completion of the 5-yearly service.
 - Submit certification.

G. Perform Overhaul of Fire Shut-off Valves

- 1) The hydraulic oil skid and lubricating oil skid fire shut-off valves are subjected to a 5-yearly internal inspection and overhaul of which the activities comprise of the following:
 - Disassembly and removal of components.
 - Cleaning and inspection of components.
 - Renewal of the valve diaphragm.
 - Renewal of valve seat and seals.
 - Renewal of damaged components.
 - Renewal of gaskets.
 - Reassembly of the valve.
 - Functional testing of the fire shut-off valves.
 - A service label must be fitted on completion of the 5-yearly service.
 - Submit certification.

H. Perform Overhaul of Store Building Fire Pump & Driver and conduct Shop Performance Testing of Fire Pump

- 1) **Note: The Contractor removes the Store Building Pump Assembly and install, align and commission the spare pump and motor to ensure the fire protection systems remains available and is not impaired.**
- 2) The store building fire pump and driver are subjected to 5-yearly overhaul and the pump is subjected to performance testing at the *Contractor's works*.
- 3) The *Contractor* make provision for all spares and material required for the overhaul of the pump and driver.
- 4) The *Contractor* collects the pump and motor from the *Employer's* premises and transport the pump and motor to the Contractor's works for the overhaul and shop performance test.
- 5) Pump Rating is as follows:
 - Flow: 5 m³/h
 - Head: 62 m
 - Speed: 2826 RPM
- 6) The following are tolerances from rated conditions and if these conditions are not met with the performance test, the necessary corrections must be made, and the test must be repeated.
 - Rate of flow: $\pm 5\%$
 - Total head: $\pm 5\%$ of acceptance curve
 - Speed rotation: $\pm 1\%$
 - Pump efficiency: -5%
 - Head at 150% of rated flow or maximum flow: not $\leq 65\%$
 - Shut-off head: not $\geq 140\%$ of rated head
 - Voltage: not $\leq 95\%$ and not $\geq 110\%$
- 7) The *Contractor* delivers and off-load the pump and motor only once the pump and motor has successfully passed the shop performance test.

- 8) Overhaul of Pump Drivers:
 - The *Contractor* removes and delivers the electric motor to the *Contractor's* works for overhaul and megger testing.
 - The *Contractor* delivers and off-load the electric motor at the *Employer's* premises.
 - Overhaul of the electric motor is performed in accordance with approved instructions from the *Employer*.
- 9) Submit pump performance reports, test reports, curves and certification.

I. Perform Non-destructive Testing (X-Ray) on Fire Piping and Welds

- 1) Conduct X-Ray of fire piping and welds for wall thickness reduction, weld defects, material defects, corrosion, etc. on the following sections:
 - **Main Fire Water Supply Take-off on Draft Tube**
 - Section of 200NB piping from Draft Tube Take-off to Isolating Valve 00SGA10AA501.
- 2) Provide detailed reports with digital images of the condition assessment of the pipe and welds.

8 As Required

A. Perform Hydrostatic Pressure Testing of Gaseous Fire Suppression System Cylinders

- 1) Hydrostatic pressure testing of gaseous fire suppression system cylinders for Equipment and Communications Rooms Envirogen Fire Suppression Systems are carried out.
- 2) Hydrostatic pressure testing of cylinders is conducted in accordance with the following instructions:
 - Complete and attach service tags / labels to cylinders and record all information on data sheets.
 - Submit inspection and pressure test certificates. Certification is in conformance of requirements of Pressure Equipment Regulations (PER).
 - Ensure that any cylinders that is removed from its location for hydrostatic testing, is replaced with another temporary cylinder that conforms to the following requirements:
 - Cylinders are uniquely identified, labelled and kept on a register which is submitted to the *Employer*.
 - Safety seals and tampering devices/indicators are not broken or missing.
 - Extinguishing agent quantity is adequate, as determined by weighing or lifting.
 - Pressure gauge or indicator is within the operable range or position (green).
 - No obvious physical damage, corrosion, leakage or clogged nozzle exists.
 - Temporary cylinders are compliant with Pressure Equipment Regulations (PER) and have the necessary certification (manufacturing and pressure test certificates) and is produced on delivery of temporary cylinders.

9 Reactive Maintenance

The *Contractor* shall be available to perform inspections, repairs, refurbishments for unforeseen defects that have occurred on the system and to provide the necessary spares.

The following is a summary of the reactive maintenance tasks and provision of spares on the fire protection system:

9.1 Weld repair and fabrication, consisting of but not limited to pipework, structures, plant components, etc.

- Scope of work is as follows:
 - Perform weld fabrication of pipework, structures and plant components, etc.
 - Provide necessary requirements for performing welding, comprising of the following:
 - A coded welder is used.
 - *Contractor* submits ISO 3834 Certificate.
 - Welding requirements is in accordance with Eskom Standard 240-106628253 –Standard for Welding Requirements on Eskom Plant.

- Provide a Welding Procedure Specification (WPS) supported by a valid Weld Procedure Qualification Record (WPQR)/Procedure Qualification Record (PQR) and Weld Qualification Record (WQR) for welding that will be performed during fabrication.
- Weld procedure qualification for all welds is in accordance with the appropriate welding standard incorporated into the relevant design and construction code.
- The WPS and WPQR/PQR is approved by a registered IWE or IWT with the minimum requirements as defined in the Eskom Standard 240-106628253.
- The WPQR/PQR is submitted with its relevant NDT and DT reports.
- *Contractor* makes provision for the following:
 - Supply of labour
 - 1 x Supervisor
 - 1 x Safety Officer
 - 1 x Coded Welders
 - 2 x Pipe Fabricators
 - 1 x Maintenance Assistant
 - Travelling Cost
 - Accommodation
 - Living Out Allowance

9.2 Corrosion Protection.

- Scope of work is as follows:
 - Perform sandblasting and hot-dip galvanising of fabricated components.
 - Components are sandblasted and hot dip galvanised in accordance with SANS 121.
 - *Contractor* makes provision for the following:
 - Transport of materials for corrosion protection.
 - Hot-dip galvanising of components.

9.3 Non-Destructive Testing of Welds

- Scope of work is as follows:
 - Perform non-destructive testing of welded connections.
 - All welded connections are subjected to dye penetrant testing.
 - NDT on welds is performed according to the requirements of the relevant design and construction codes and Eskom Standards 240-83539994 and 240-83540088.
 - Provide qualifications of the NDT personnel.
 - Provide NDT procedures.
 - *Contractor* makes provision for the following:
 - Supply of materials, consumables, tools and equipment to perform non-destructive testing.
 - Supply of labour
 - 1 x Technician
 - 1 x Assistant
 - Travel cost
 - Accommodation
 - Living Out Allowance

9.4 Repair of Fire Doors

- Scope of work is as follows:
 - The repair of fire doors is conducted in accordance with the requirements of Eskom Guideline 559-212114010 – Fire Doors – Selection, Installation, Inspection and Maintenance Guideline, SANS 1253 – Fire-doors and fire-shutters and Eskom Work Instruction 240-147741101 – Structural Design Works Information and Technical Specification Work Instruction
 - The *Contractor* carries out in-field repairs on existing fire doors to restore doors to its original design condition.

- The *Contractor* supplies hardware for the doors that includes the following:
 - Latching mechanism
 - Hinges
 - Doorknobs / levers
 - Self-closing mechanism
- The *Contractor* issues a Certificate of Installation and Certificate of Compliance (C.O.C.) on completion of the remedial work.
- The *Contractor* makes provision for the following:
 - Supply of materials, consumables, tools and equipment for the repair of fire doors.
 - Supply of labour
 - 1 x Supervisor
 - 1 x Technician
 - 1 x Assistant
- Travel cost
- Accommodation
- Living Out Allowance

9.5 Repair of Leaks on Foam Storage Systems

- Scope of work is as follows:
 - The Contractor carries out in-field repair of leaks on foam storage systems that include removal of piping, fittings, valves, etc. and replacing it with new components.
 - The *Contractor* drains the foam concentrate and refill the tank on completion of the repair.
 - The *Contractor* makes provision for the following:
 - Supply of materials, consumables, tools and equipment for the repair of leaks.
 - Supply of labour
 - 2 x Technician
 - Travel cost
 - Accommodation
 - Living Out Allowance

9.6 Replacement of Fire Doors

9.6.1 Yearly Replacement of Fire Doors

- Scope of work is as follows:
 - The *Contractor* assesses the site in conjunction with the *Employer* to ascertain and determine the scope of work.
 - The replacement of fire doors is conducted in accordance with the requirements of Eskom Guideline 559-212114010 – Fire Doors – Selection, Installation, Inspection and Maintenance Guideline, SANS 1253 – Fire-doors and fire-shutters and Eskom Work Instruction 240-147741101 – Structural Design Works Information and Technical Specification Work Instruction.
 - The *Contractor* takes note of the following requirements pertaining to the replacement of fire doors:
 - In the event that the entire assembly (door and frame) is replaced, the assembly must have the required certification labels i.e. label on both door and frame.
 - If existing frames are to be re-used, then the *Contractor* must demonstrate by means of the test certification that the existing frame dimensions are in compliance with the prototype (test) assembly.
 - Since the door assembly dimensions throughout site differs, it is required from the *Contractor* to take measurements of each individual door assembly that require replacement to ensure that the dimensions and clearances are in compliance with the required standards once installed.
 - All hollow frames are required to be backfilled using a fire-rated mortar.
 - The type of doors to be installed in various areas are in compliance with the relevant standards and the proposed doors for installation is subjected to approval from the *Employer*.
 - The *Contractor* is required to supply a Certificate of Conformance for each installed door.
 - The *Contractor* is required to supply Certification of Installation for each door.
 - The *Contractor* is required to supply Test Certification for each door.
 - The *Contractor* is required to supply the installation procedure(s) as per the manufacturer's instructions for the *Employer* to review.

- The *Contractor* provides SABS test reports and certification of the prototype fire doors subjected to testing in accordance with SANS 10177-2.
- Removal of old door
 - Removal of all hardware on the door, including of latching mechanism, self-closing mechanism, hinges and door lever/knob.
 - Detach the door and carefully remove the door from its frame with a pry bar or hammer.
 - Where required, remove the frame using a breaker, drill hammer and chisel. Carefully remove up to 300mm to 400mm wide of the old brick and plaster wall on all sides of the opening and around the old door frame.
 - Inspect the frame before installing the replacement door. Check the wall and door frame surfaces for any damage and irregularities.
- Installation of new door
 - Take precise measurements of the door frame to ensure the new fire-rated door will fit properly.
 - Prepare the door frame by removing the any debris or obstructions that may prevent installation.
 - Install the new door and secure the new fire rated door with screws or fasteners.
 - Conduct finishing around the door frame by building a new brick wall (300-400mm wide) around the door frame and ensure that it remains plum throughout the building process.
 - Place fire-rated foam between the door frame and the brick gaps on both sides of the door frame.
 - Apply plaster mix to all new brick surfaces. Finish precisely around the door frame and on the existing wall surfaces.
 - Once all plaster surfaces have dried, apply a plaster priming coat, followed by two final coats. Since the door frame comes with red oxide primer, only two final coats will be applied before the door is installed. The door must be painted before installation with one priming coat followed by two finishing coats.
 - Install hardware such as hinges, doorknobs/levers, latching and self-closure mechanisms on the new door.
 - Test the door by opening and closing it to ensure smooth operation.
 - Seal any gaps between the door and the door frame and the wall using fire-rated sealant to ensure fire integrity.
 - Check for compliance with building norms and requirements for fire-rated doors.
 - Verify that both frame and door is equipped with a label.
- The *Contractor* issues a Certificate of Installation, Certificate of Compliance (C.O.C.) and relevant certification of the assemblies on completion of the installation.
- The *Contractor* makes provision for the following:
 - Supply of materials, consumables, tools and equipment for the replacement of fire doors.
 - Supply of labour
 - Travelling Cost
 - Accommodation
 - Living Out Allowance
 - Delivery of Materials

9.6.2 Once-off Replacement of Fire Doors

- Scope of work is as follows:
 - The *Contractor* assesses the site in conjunction with the *Employer* to ascertain and determine the scope of work.
 - The replacement of fire doors is conducted in accordance with the requirements of Eskom Guideline 559-212114010 – Fire Doors – Selection, Installation, Inspection and Maintenance Guideline, SANS 1253 – Fire-doors and fire-shutters and Eskom Work Instruction 240-147741101 – Structural Design Works Information and Technical Specification Work Instruction.
 - The *Contractor* takes not of the following requirements pertaining to the replacement of fire doors:
 - In the event that the entire assembly (door and frame) is replaced, the assembly must have the required certification labels i.e. label on both door and frame.
 - If existing frames are to be re-used, then the *Contractor* must demonstrate by means of the test certification that the existing frame dimensions are in compliance with the prototype (test) assembly.

- Since the door assembly dimensions throughout site differs, it is required from the *Contractor* to take measurements of each individual door assembly that require replacement to ensure that the dimensions and clearances are in compliance with the required standards once installed.
- All hollow frames are required to be backfilled using a fire-rated mortar.
- The type of doors to be installed in various areas are in compliance with the relevant standards and the proposed doors for installation is subjected to approval from the *Employer*.
- The *Contractor* is required to supply a Certificate of Conformance for each installed door.
- The *Contractor* is required to supply Certification of Installation for each door.
- The *Contractor* is required to supply Test Certification for each door.
- The *Contractor* is required to supply the installation procedure(s) as per the manufacturer's instructions for the *Employer* to review.
- The *Contractor* provides SABS test reports and certification of the prototype fire doors subjected to testing in accordance with SANS 10177-2.
- Removal of old door
 - Removal of all hardware on the door, including of latching mechanism, self-closing mechanism, hinges and door lever/knob.
 - Detach the door and carefully remove the door from its frame with a pry bar or hammer.
 - Where required, remove the frame using a breaker, drill hammer and chisel. Carefully remove up to 300mm to 400mm wide of the old brick and plaster wall on all sides of the opening and around the old door frame.
 - Inspect the frame before installing the replacement door. Check the wall and door frame surfaces for any damage and irregularities.
- Installation of new door
 - Take precise measurements of the door frame to ensure the new fire-rated door will fit properly.
 - Prepare the door frame by removing the any debris or obstructions that may prevent installation.
 - Install the new door and secure the new fire rated door with screws or fasteners.
 - Conduct finishing around the door frame by building a new brick wall (300-400mm wide) around the door frame and ensure that it remains plum throughout the building process.
 - Place fire-rated foam between the door frame and the brick gaps on both sides of the door frame.
 - Apply plaster mix to all new brick surfaces. Finish precisely around the door frame and on the existing wall surfaces.
 - Once all plaster surfaces have dried, apply a plaster priming coat, followed by two final coats. Since the door frame comes with red oxide primer, only two final coats will be applied before the door is installed. The door must be painted before installation with one priming coat followed by two finishing coats.
 - Install hardware such as hinges, doorknobs/levers, latching and self-closure mechanisms on the new door.
 - Test the door by opening and closing it to ensure smooth operation.
 - Seal any gaps between the door and the door frame and the wall using fire-rated sealant to ensure fire integrity.
 - Check for compliance with building norms and requirements for fire-rated doors.
 - Verify that both frame and door is equipped with a label.
- The *Contractor* issues a Certificate of Installation, Certificate of Compliance (C.O.C.) and relevant certification of the assemblies on completion of the installation.
- The *Contractor* makes provision for the following:
 - Supply of materials, consumables, tools and equipment for the replacement of fire doors.
 - Supply of labour
 - Travelling Cost
 - Accommodation
 - Living Out Allowance
 - Delivery of Materials

9.7 Repair & Installation of Fire Stopping and Intumescent Coatings

- Scope of work is as follows:
 - Conduct repair and installation of fire stops and cable coating in accordance with the following instructions as detailed below.
 - **Fire Stopping of Penetrations**
 - The *Contractor* supply, deliver and offload the fire stopping material.
 - Conduct sealing of penetrations on identified plant areas and in accordance with the approved instructions.
 - Provide all necessary equipment, tools & material required to complete the *service*. Fire stop material is of the water based intumescent fire-retardant type.
 - The *Contractor* provides third party test certificates for the proposed fire stop material.
 - The *Contractor* provides material safety datasheets and technical datasheets for the fire stop material.
 - Proposed fire stop material that has extensively been used on Peaking sites include:
 - Product: Mineral Wool Panel – Mandoval Vermiculite
 - Product: Pyrosafe WB – Mandoval Vermiculite
 - Product: TEKROK “S” Plaster – Mandoval
 - All fire stops shall have a fire rating in accordance with SANS 1077 or equivalent of the fire rating up to the structure or partition, or two (2) hours, whichever is the greater against the spread of fire and smoke.
 - Fire stop material shall meet Factory Mutual (FM) Approval, Underwriters Laboratory (UL) requirements.
 - Fire stopping systems are required to have been fire tested to the requirements of SANS1077, IEEE 634, ASTM E814.
 - Fire stop material shall be non-toxic, asbestos and lead free.
 - Fire stop material shall be resistant to chemicals, oils and lubricants.
 - Fire stops shall be weather resistant and suitable for both indoor and outdoor use.
 - Fire stops shall not affect cable ratings.
 - Any cables entering/leaving a wall, floor or penetration shall be coated on both sides of the wall/floor to a length of 2 meters.
 - Fire stops must be capable of being easily re-opened to allow the installation of future services.
 - **Cable Coating**
 - The *Contractor* supplies, deliver and offload the cable coating material.
 - Conduct cable coating on identified plant areas and in accordance with the approved instructions.
 - Application of coats is done by hand.
 - Provide all necessary equipment, tools & material required to complete the *service*.
 - The *Contractor* provides third party test certificates for the proposed cable coating material.
 - Cable coating material is of the water based intumescent fire-retardant type
 - Proposed fire stop material that has extensively been used on Peaking sites include:
 - Product: Pyrosafe WB - Mandoval Vermiculite
 - Cable coating material must have been tested in accordance with SANS10177 or equivalent and must have a performance rating of 2 hours for stability, insulation and integrity.
 - Cable coating material shall meet Factory Mutual (FM) Approval, Underwriters Laboratory (UL) requirements.
 - Cable coating systems are required to have been fire tested to the requirements of SANS10177 or equivalent such as IEEE 634 and ASTM E814.
 - Test certificates must prove the two (2) hour rating and must not be older than 5 years.
 - Cable coating material shall be non-toxic, asbestos free and lead free.
 - Cable coating material shall be resistant to chemicals, oils and lubricants.
 - Coated cables shall be weather resistant and suitable for both indoor and outdoor use.
 - Cable coating shall not affect the current carrying capacity of the cables.
 - The *Contractor* shall ensure that proper surface preparation is carried out in order for the fire-retardant coat to function as intended by design.
 - Any cables entering/leaving a wall, floor or penetration shall be coated on both sides of the wall/floor to a length of 2 meters.
 - Cables shall be coated in lengths of two metres every 5 meters.

- The *Contractor* makes provision for the following:
 - Supply of materials, tools and equipment to perform fire stopping and cable coating.
 - Supply of labour
 - Transport
 - Travelling Cost
 - Accommodation
 - Living Out Allowance

9.8 Disposal of Fire Equipment

- Scope of work is as follows:
 - The *Contractor* disposes of any fire equipment identified by the *Employer* in a safe handling and disposal method and provide a safe disposal certificate for any equipment disposed.
 - The *Contractor* make provision for the following:
 - Transport of materials for disposal purposes.

9.9 Undefined Spares

- The *Contractor* makes provision for the supply of spares not defined because of unplanned breakdowns, degradation of equipment and scrapped components.
- Spares include, but is not limited to the following:
 - Extinguishers
 - Fire equipment signage
 - Hydrant caps
 - Extinguisher cabinets
 - Hydrants
 - Batteries

9.19 Call Outs / Defects

- The *Contractor* makes provision for call outs to attend to breakdowns and any faults that occurs on the fire protection system.
- The *Contractor* makes provision for the following:
 - Supply of labour
 - Travelling Cost
 - Accommodation
 - Living Out Allowance

10. Obsolete or unavailability of spares.

- The *Contractor* supplies a list with specifications and data sheets of equivalent spares for any spares that are found obsolete from the specified list of spares.
- The use of equivalent spares is regarded as an Engineering Change which is governed by the Engineering Change Management Procedure 240-53114002. The *Employer* must first obtain approval as per the Engineering Change Management (ECM) Process before any equivalent spares can be obtained.

11. Spares no longer required due to upgrades.

- The *Employer* informs the *Contractor* in advance of any spares that are no longer required as a result of planned upgrades by the *Employer*.

12. Spares that contain banned substances.

- The *Contractor* provides assurance to the *Employer* that the spares do not contain any of the banned substances as per the National Environmental Management Act 107-1998:
 - **Hexabromocyclododecane (HBCD)** – flame retardant in polystyrene insulation.
 - **Hexachlorobutadiene (HCBD)** – solvent in industrial processes.
 - **Polychlorinated naphthalenes (PCN)** – used in electrical insulation.
 - **Decabromodiphenyl ether (decaBDE)** – flame retardant in plastics and textiles.
 - **Short-chain chlorinated paraffins (SCCP)** – additives in lubricants and sealants.
 - **Perfluorooctanoic acid (PFOA)** and related compounds – used in non-stick coatings.

- **Perfluorooctane sulfonic acid (PFOS)** – surfactant in firefighting foams.
- **Various brominated diphenyl ethers (Hexa-BDE, Hepta-BDE, Tetra-BDE, Penta-BDE)** – flame retardants in electrical components.
- The *Contractor* provides declaration in writing that none of the spares contain any banned substances as detailed under section 12 above.

1.3. Interpretation and terminology

The following abbreviations are used in this Service Information:

Abbreviation	Meaning given to the abbreviation
OBL	Outside battery limits
SAQCC-Fire	South African Qualification and Certification Committee - Fire
SCADA	Supervisory Control and Data Acquisition
PER	Pressure Equipment Regulations
PPE	Personal Protective Equipment
ESKOM	Electricity Supply Commission
km	kilometre
MW	Megawatt

2. Management strategy and start up.

2.1 The *Contractor's* plan for the service

The *Contractor* prepares his plan on MS project format computerised planning software and utilises it for all planning, progress monitoring and reporting. The plan shows all the information required by Clause 21.2 of the TSC3.

In addition, the plan shows:

- The plan indicates the start date, Completion Date and duration of each activity.
- The plan revision number

2.2 Management meetings

Regular meetings of a general nature may be convened as and required as follows:

Title and purpose	Approximate & interval	Location	Attendance by:
Kick-off meeting	Interval: Once-off	Drakensberg Power Station / MS Teams	<i>Employer, Service Manager, Contractor, and Others as required</i>
Overall contract progress and feedback	Interval: Daily	Drakensberg Power Station / MS Teams	<i>Employer, Service Manager, Contractor, and Others as required</i>
Risk Reduction meeting	Adhoc	Drakensberg	<i>Employer, Service</i>

		Power Station / MS Teams	<i>Manager, Contractor, and Others as required</i>
At the risk reduction meetings items as prescribed in TSC Clause 16.2 and 16.3 are discussed. The Risk Register is updated by <i>Service Manager</i> and distributed within five days of the meeting.			
Meetings of a specialist nature	Adhoc	Drakensberg Power Station / MS Teams	<i>Employer, Service Manager, Contractor, and Others as required</i>

Meetings of a specialist nature may be convened as specified elsewhere in this Service Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the *service*. Records of these meetings shall be submitted to the *Service Manager* by the person convening the meeting within five days of the meeting.

All meetings shall be recorded using minutes including MS Teams recording transcript or a register prepared and circulated by the person who convened the meeting. Such minutes, MS Teams recording transcript 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.

2.3 Contractor’s management, supervision and key people

The *Contractor* provides competent personnel to supervise and perform the *service*, an organogram depicting the resources on site and their lines of authority/communication.

The Organogram shall include current contact details and emergency response (24-hour) information.

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

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

2.4 Documentation control

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.

2.5 Communication

All Communication is addressed to the *Service Manager* as applicable to the TSC3, clause 13.1,

All communication refers to:

- The Contract Number that is issued by the *Employer* (normally a 46000.....)
- The Contract title.
- Any previous reference relating to the specific communique.
- The Specific TSC 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 *Service Manager* and *Contractor* and vice versa is as follows:

From the *Service Manager* to the *Contractor*: 46000..... E/C 0xxx; and
 From the *Contractor* to the *Service Manager* 46000 C/E 0xxx referring to the Contract number and the next sequential letter (channel) number

2.6. Invoicing and payment

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

The *Contractor* shall address the tax invoice to Local Eskom Invoices - invoiceseskomlocal@eskom.co.za and include on each invoice the following information:

- Name and address of the *Contractor* and the *Service Manager*;
- The contract number and title;
- *Contractor's* VAT registration number;
- The *Employer's* VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Price List;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- Relevant Task Order Number (commencing with a 45 prefix)
- Relevant task order line-item number
- Attach the proof of delivery to your invoice
- The *Services Manager* to be copied in on all electronic invoices emailed

Failure to submit the invoice to the correct address could result in delays in payment.

2.7. Contract change management

The use of Standard forms is encouraged and is obtainable from the *Service Manager* for instances like compensation events Contract change management is managed in accordance with clause 6 of the core clauses in TSC3.

2.8. Records of Defined Cost to be kept by the *Contractor*

The *Contractor* keeps records of defined costs and submits them to the *Service Manager* for Compensation Event when required for the purpose of assessing Compensation Events. The submission of such records does not automatically entitle the *Contractor* to Compensation Events

2.9. Insurance provided by the *Employer*

Insurance will be applicable as per applicable insurance reference and clauses in the *Employer's* Contract data.

2.10. Design and supply of Equipment

The scope of the work is described in this specification. No alteration to- or on equipment is allowed without the written consent of the *Service Manager*.

2.11. Things provided at the end of the *service period* for the *Employer's* use Information and other things

The *Contractor* provides a detailed service report following each service period.
The contractor provides material and test certificates and material safety data sheets for all spares.

2.12. Management of work done by Task Order

The *Service Manager* shall issue the *Contractor* with a Task Order (commencing with a 45 prefix). This task order authorises work to be done by the *Contractor*. No works are to be executed without a Task Order. The *Service Manager* issues a Task Order to the *Contractor* which specifies clearly the work to be performed, additional specification; procedures; and any other constraints in providing the service. The Task Order is issued before *Contractor* provides the service.

The *Services Manager* issues the task order to the contract in a timely manner that allows the *Contractor* to properly plan the service within the time period(s) stated on the task order. The *Contractor* performs the service in accordance with the task order issued and completes it within the time period specified in the task order.

All services provided comply with this contract and procedures stated. Should the *Contractor* be unable to supply the resources required to complete the task order within the period specified the *Contractor* immediately notifies the *Service Manager*. The notification includes recommendations as to how the work can be completed timeously.

3. Health and safety, the environment and quality assurance

3.1. Health and safety risk management

- 3.1.1 The *Contractor* shall comply with the health and safety requirements contained in OHS Requirements and the approved safety file by *Employer*. *Employer* reserves the right to review the OHS Requirements to address the Operational risks and the *Contractor* shall comply with the latest OHS Requirements as amended at no cost for the duration of the contract at Drakensberg Power Station.
- 3.1.2 The section 37(2) agreement as stipulated under the OHS Act no 85 of 1993 must be signed by *Contractor* and *Employer* representatives.
- 3.1.3 The *Contractor* OHS professional must conduct internal audits at planned intervals (for the duration of the contract at Drakensberg Power Station to monitor compliance to the contractual health and safety requirements.
- 3.1.4 The *Service Manager* must conduct inspections at planned intervals (for the duration of the contract at Drakensberg Power station to monitor compliance to the contractual health and safety and legal requirements.
- 3.1.5 The *Contractor* may be selected during internal and/or external Peaking Power Station audits to verify compliance to legal and contractual OHS requirements. The *Service Manager* will communicate this at relevant time periods and the contractor shall avail themselves for this audit.
- 3.1.6 In addition to the requirements of the applicable laws governing the occupational health and safety, Drakensberg Power Station OHS requirements particular to the service and the Affected Property for this contract shall be adhered to for the duration of the contract.

The minimum requirements for the *Contractor* to gain access to Drakensberg Power Station include the but not limited to:

- Valid Medical fitness certificate
- Police clearance from SAPS or accredited supplier/service provider linked to SAPS AFIS system not older than thirty (30) days.
- Identification document (RSA ID or equivalent)
- National Drivers Licence (applicable to drivers)
- Adherence to the Eskom Life-saving rules.
- Applicable risk-based PPE.
- Valid letter of good standing always (COIDA or equivalent). Access to site to perform work will be denied should the Letter of good standing not be valid.
- The *Contractor* who is working alone and not eligible to register with the compensation fund, shall provide *Employer* with the member benefit statement of the insurance cover which include life and disability cover to the minimum fund of R500 000.

Note: Induction will only be conducted after the above documents have been submitted and accepted by *Employer*.

3. 2 Key Performance Indicators

1. *Contractor* Management Key Performance Indicators (KPI's)
2. Maintain Health and Safety file and compliance to the health and safety plan, *Employer* OHS requirements and applicable legislation as amended.
3. Always maintain good housekeeping where the task is being executing and/or within the area of responsibility.
4. Implement and monitor near miss reporting strategy / programme (reporting of near misses).
5. Develop and comply to Behavioural Safety Observation (BSO) and Planned Job Observation programmes (PJO).
6. Maintain Zero Fatalities for the duration of the contract.
7. At any given point, the OHS performance must be within the lost time injury (LTI) tolerance level as amended.
8. All incidents must be reported immediately or before the end of the particular shift during which the incident occurred.
9. All incident investigations shall be completed within 07 working days of the occurrence of an incident.
10. Incident investigation recommendations shall be closed within the recommended time frame recorded in the Incident investigation report.
11. Close audit findings as per the *Employer's* procedure or audit report recommended time frames.
12. Close Non-conformance as per the recommended time frames.

Note: Monitoring of the above mentioned KPI's will take place through regular audits and inspection.

3.3 Contract completion and sign off

On completion of the contract, *Employer's* team (led by the *Service Manager*) involved in the contract together with the *Contractor* shall conduct the final meeting to identify the gaps prior to the contract close out. Before the final invoice is paid/processed, the *Service Manager* shall ensure that the below requirements are met:

- a) Close all incidents and audit findings.
- b) Clean the respective area and ensure good housekeeping where the *Contractor* was working.
- c) *Contractor* shall submit safety statistics and a safety file to *Employer's* Safety Department for closeout and filling.

Completion of a closeout report to close the contractual work.

4. Environmental constraints and management

The *Contractor's* rates tendered shall cover all costs that will be incurred to comply with all requirements of the environmental requirements. Special attention is drawn inter alia to the following aspects:

- The *Contractor's* attention is drawn to the fact that the Drakensberg Power Station is situated in a highly sensitive environmental area and that any incident that may result in an environmental impact must be brought to the attention of the *Service Manager* as soon as it is possible. The site is managed in accordance with an ISO 14001 certified management system, and the *Contractor* will be expected to manage all processes in line with environmentally sound principles.
- The *Contractor*, in and about the execution of the service, complies with all applicable national, provincial and Municipal environmental legislation and by laws.
- Comply with all environmental legislation of South Africa, including but not limited to:
National Environmental Management Act 107 of 1998
National Environmental Management Waste Act 59 of 2008
National Water Act 36 of 1998
Eskom Waste Standard latest revision
Waste Management: Norms and standards: Act 59 of 2008 latest revision
- The *Contractor* shall comply to all National and Local legislation requirements as well as *Employer's* procedures and policy. *Employer's* goal is to ensure zero harm to the environment, and to ensure that any possible impact is mitigated or managed. The Duty of Care and implementation of best

practice is critical during operations, and full communication on environmental issues is required at all times.

- Site/laydown demarcation: The *Contractor* shall demarcate his camp site, be restricted to that specific area and take full responsibility to restore the area to its original condition before the contract commenced.
- Waste management: The *Contractor* shall dispose of all waste off-site at a licensed waste disposal facility and submit proof to the *Employer*. The method statement on waste management will need to include the identification of possible waste streams, temporary storage and disposal options for each waste type, and contingency plans in the case of any environmental incident. A Safety Data Sheet must be supplied for all chemical or hazardous / potentially hazardous material brought onto site.”
- Sanitation: The *Contractor* shall provide an appropriate enclosed temporary sanitation facility
- Dust control: The *Contractor* shall be responsible to apply effective dust control measures.
- Fire prevention: It shall be the responsibility of the *Contractor* to prevent fires at all times during the contract.
- The *Contractor* shall take full responsibility for protecting the natural environment and eliminating or minimising the negative impacts of construction on the environment during construction. Nothing specified herein shall relieve the *Contractor* of any obligations or responsibilities in this regard.
- The *Contractor* shall implement an Environmental Policy and plan, in line with relevant various compliance obligations, statutory regulations, including all national, provincial and municipal legislation/regulations.
- Method statements which include environmental protection shall be submitted to the *Service Manager* within 14 days after the starting date.
- The *Contractor* shall conduct his activities so as to cause the least possible disturbance and adverse impact to the existing amenities, whether natural or man-made, in accordance with all the currently applicable statutory requirements. Special care shall be taken by the *Contractor* to prevent irreversible damage to the environment.
- The *Contractor* shall take adequate steps to educate all members of his workforce as well as his *Supervisory* staff on the relevant environmental laws and regulations. The *Contractor* shall supplement these steps by prominently displayed notices and signs in strategic locations to remind personnel of environmental concerns.

Method Statements

The *Contractor* shall submit, before 14 calendar days of commencement of any activity, a Method Statement containing details of all site layouts and environmental protection measures proposed to the *Service Manager* for review and acceptance.

These shall include but not limited to:

- i. Site establishment layout;
- ii. Pollution prevention measures;
- iii. Waste including water management plan;
- iv. Incident and emergency management

In addition, the *Contractor* shall provide detailed method statements on how he intends to carry out the *works*; this shall apply to all, and any part of the *works* as provided in the *conditions of contract*.

Temporary Services and Facilities

- All fuel storage tanks shall be banded to 110 % of the total storage capacity. Fuel dispensing areas and workshop areas shall be provided with concrete hard standing draining to oil separators. This will also apply to other areas with pollution potential.
- Cleaning, maintenance and repairs of vehicles shall be done off site.

Protection of Rivers, Streams and Watercourses

- All rivers, streams and watercourses shall be protected from direct or indirect spills of pollutants such as garbage, sewage, cement, oils, fuels, chemicals, aggregate tailings, silt and wastewater or organic material resulting from the *Contractor's* activities. In the event of a spill prompt action shall be taken to clear polluted or affected areas.
- The *Contractor* shall not work within river flood lines, streams, water courses and wetlands without the written acceptance of the *Service Manager* as required for the execution of the work.

Refuse and Waste Control

- The management of solid waste on Site shall be strictly controlled and monitored. Only licenced waste disposal landfill sites shall be used.
- The quantities of waste generated on Site shall be minimised; Labelled recycling bins shall be used and waste separated where possible. In addition, a recycled-material collection schedule shall be established and the bins shall be collected regularly;
- Eating areas for the construction staff shall be designated and supplied with waste bins.
- No on-site burying or dumping or unauthorised burning of any waste materials, vegetation, litter, or refuse shall occur;
- Bins provided must have lids and will be sufficient to store the solid waste produced on a daily basis;
- The bins should be emptied at least once a day;
- Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof and which the *Service Manager* has accepted;
- All solid waste shall be disposed of off site, at a licenced landfill site. The *Contractor* shall supply the *Service Manager* with a certificate of disposal; and Waste shall be separated into domestic waste, building/construction rubble, scrap metal, oil and grease and hazardous waste and dealt with in the following manner:

Protection of Flora

- The removal, damage and disturbance of indigenous flora are prohibited.

Protection of the Fauna

- The *Contractor* shall protect fauna living within the Site and shall ensure that hunting, snaring, poisoning, shooting, nest raiding, or egg-collecting and disturbance does not occur.
- The *Contractor* is to ensure that his employees are instructed not to feed wild animals.
- The use of pesticides is prohibited unless accepted by the *Service Manager*.
- No domestic pets or livestock are permitted on Site.

Dust

- A dust control programme shall be implemented by the *Contractor* to maintain a safe and healthy working environment.
- The *Contractor* shall act appropriately to minimise the generation of dust resulting from his works operations and activities.
- The *Contractor* shall prepare and submit a Dust Control Method Statement to the Supervisor within 14 days after the Starting Date.

5. Quality assurance requirements

- The quality requirements are as per ISO 9001:2015 and as per Eskom document 240-105658000, SUPPLIER CONTRACT QUALITY REQUIREMENTS SPECIFICATION.
- The *Contractor's* company quality documents are subject for verification and acceptance by Eskom.
- The supplier shall submit objective evidence of a developed QMS that complies with ISO 9001 (or the latest applicable revision). The following documented information (approved/ signed copies) shall be submitted:
 - ✓ Quality management system manual or a (documented information) that have defines and describes the QMS and its scope
 - ✓ Quality Policy, aligned with the supplier's strategic direction (documented information)
 - ✓ Quality Objectives (documented information)
 - ✓ Control of documented information (both maintain and retain documented information)
 - ✓ Internal audit procedure (documented information)
 - ✓ Control of nonconforming outputs (documented information)
 - ✓ Nonconformity and Corrective action procedure (documented information)
- The QMS should drive all the supplier's business management processes to ensure that all of Eskom's requirements are fully met on a consistent basis. Supplier Quality Management: Specification Unique Identifier: 240-105658000
- The supplier shall submit a draft contract quality plan that is specific to the scope of work as described in the tender documents. The plan must address the minimum requirements as per ISO 10005.

- Where applicable; the supplier shall submit an example inspection and test plan (ITP) or quality control plan (QCP).
- The supplier shall submit documented information for Control of Externally Provided Processes, Products and Services.
- The supplier shall submit a copy of documented information for roles, responsibilities and authorities in relation to the QMS. Examples of relevant documented information are; organization charts, job descriptions, work instructions, duty statements, manuals, procedures
- The supplier shall complete and sign Form A under Category 3 (Enquiry/Contract/Quality Requirements for Supplier Quality Management Specification 240-105658000/ QM 58 and ISO 9001).

6. Procurement

6.1. People

6.1.1. Minimum requirements of people employed

Requirements as set out in section 1.2 (c) shall be adhered to. In addition, training conducted for key personnel in terms of the Skills Development Act of 1999 and that assurance that all training conducted has been done through, or has been governed by, the SETA.

A curriculum Vitae of each person shall be submitted at the time of tender and if and when personnel changes occur. This shall be noted in the compulsory organogram and updated.

Staff shall be classified as per SANS 10147 (D4) et al.

6.1.2. BBBEE and preferencing scheme

With confirmation of its B-BBEE Status by submitting an updated Verification Certificate by no later than 30 (thirty) days.

Contractor to ensure the *Service Manager* has an updated valid certified copy of BBBEE certificate or sworn affidavit during contract period. Failure to do so, could result in Eskom Vendor Management Department blocking vendor details on Eskom vendor management system which affects payment processing of invoices.

Supplier Development and Localisation.

Refer to attached document – SDL&L Strategy Template for Bidders

6.2. Subcontracting

6.2.1 Preferred subcontractors

No nominated subcontractors.

6.2.2. Limitations on subcontracting

The *Contractor* shall not sub-contract more than 20% of the work. This will not apply to any documentational work at/during tender stage. No supervision must be subcontracted.

6.3. Plant and Materials

6.3.1. Correction of defects

All defects identified to be corrected immediately or if not possible, the *Contractor* notifies the *Service Manager*.

When correcting a defect during defect correction period the use of either new or repaired component, of a component under this agreement, shall be agreed upon between *Contractor* and *Employer*.

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

It shall remain the sole responsibility of the *Contractor* to procure Plant and Material of a reasonable and acceptable quality.

The *Employer* will require warranties from suppliers to be in favour of the *Employer* and not just to the *Contractor*.

6.3.3. Tests and inspections before delivery

Where applicable, material, dimensional, material safety data sheets (MSDS) and pressure test certificates are required for parts and equipment supplied or for any refurbishments/reconditioning conducted by the *Contractor*.

The *Service Manager* may request to inspect Plant and Materials together with the *Contractor* on arrival before use on site and from time to time during execution. The *Contractor* keeps records of such inspections and the records be available for *Service Manager* on request. Findings from these inspections will be tracked in the monthly meetings.

6.3.4. Plant & Materials provided “free issue” by the *Employer*

There will be no Plant and Materials provided as “free issue” by the *Employer*.

6.3.5. Cataloguing requirements by the *Contractor*

None

7. Working on the Affected Property

7.1. *Employer’s* site entry and security control, permits, and site regulations

All persons intending to perform work and/or attending meetings at Drakensberg Power Station during this contract period must comply with the following:

The *Contractor* adheres to all Life Saving Rules as specified. The *Employer* does not permit any passengers to be *transported* at the back of any Truck, light domestic vehicle or enclosed light commercial vehicle. Each person shall sign the site entrance register and this information shall also be collated by the *Contractor* for use during the scheduled meetings.

Parking is allowed in the demarcated areas only and should it be required to drive on site, then please adhere to the following:

- Maximum speed is 40km/h
- Obey all road signs.
- Damages to plant/property will be for the *Contractor’s* account.
- All *Contractor* personnel are in possession of Security clearance.
- Verification records are submitted as part of the safety file together with ID copies.
- The *Employer* reserves the right to refuse entry to all persons with criminal records.
- Original Identity document (ID) or passport is presented to Security on arrival
- No weapons are allowed on site
- No drugs allowed on site
- No explosives are allowed on site
- No firearms and ammunition allowed on site
- No photographs may be taken whilst on site
- All persons entering the *Employer’s* premises undergo a breathalyser test. Any persons testing positive is not allowed entry. The *Employer* has a zero tolerance towards alcohol.
- Tool registers is verified on arrival by security personnel
- Only reverse parking is allowed on site

7.2. People restrictions, hours of work, conduct and records

ESKOM does not permit any passengers to be transported at the back of any Truck, light domestic vehicle or enclosed light commercial vehicle.

The *Contractor* keeps records of his employees working on the Affected Property, including those of his Subcontractors. The *Service Manager* shall have access to them at any time. During the execution of this contract, other *Contractors* may be performing work on the same plant and the *Contractor* must take due cognisance of this in his planning and executing the service.

Working times will be agreed upon by the *Contractor* and *Employer*.

7.3. Cooperating with and obtaining acceptance of Others

The *Contractor* co-operates with and does not delay, impede, or otherwise impair the work of Others.

7.4. Records of Contractor's Equipment

All Equipment and Tools must be recorded in a form of a register and specified before they are allowed into the Affected Property. The Equipment and Tools record will serve as evidence for removal permits from the Affected Property after Completion of the service.

7.5. Provided by the Employer

7.5.1. Site services and facilities

The *Service Manager* shall make available to the *Contractor*, or their representatives, the following facilities during the contract period:

- Ablution facilities.
- Eating amenities in the Powerhouse.
- First-aid in the Powerhouse building.

The *Contractor* shall provide everything else necessary for providing the Service.

7.5.2. Provided by the Contractor

The *Contractor* makes provision for all required site services and facilities.

7.6. Control of noise, dust, water and waste

The control of noise, dust, water and waste shall be as expressed in the environmental requirements for site.

7.7. Hook ups to existing works

Should any hook-ups be required for specific work, please consult with the *Service Manager*.

8. Tests and inspections

8.1. Description of tests and inspections

Inspections will be carried out by the Health & Safety Officer, the Environmental officer and the *Service Manager* periodically. This information will be shared during the quarterly meetings.

Inspections carried out by the *Contractor*, specifically those intended for the prevention of harbouring areas, must be recorded and recommendations communicated with the *Service Manager* as soon as it becomes apparent.

9. List of drawings

9.1. Drawings issued by the *Employer*

This is the list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract.

Drawing number	Revision	Title
N/A		

DRAKENSBERG SPECIFICATIONS

Title	Date or revision	Tick if publicly available
General Specifications:		
240-105658000 – Supplier Contract Quality Requirements Specification		
ISO 9001:2008 – Quality Management Systems		
OHASA (1993) – Occupational Health and Safety Act of South Africa, Act 85 of 1993		√
32-136 – Contractor Health and Safety Requirements		
240-150642762 – Generation Plant Safety Regulations		
240-62196227 – Eskom Life-saving Rules Directive 23-421		
Eskom Guideline 559-212114010 – Fire Doors – Selection, Installation, Inspection and Maintenance Guideline		
Technical specifications:		
SANS 14520 – Gaseous Fire Extinguishing Systems: Physical Properties and System Design		√
SANS 10400-T – The Application of the National Building Regulations Part T – Fire Protection		√
SANS 1253 – Fire-doors and fire-shutters		√
240-54937450 – Fire Protection & Life Safety Design Standard		
240-54937454 – Inspection, Testing and Maintenance of Fire Protection Systems Standard		
240-147741101 – Structural Design Works Information and Technical Specification Work Instruction		

ANNEXURE 8 – LIST OF GASEOUS SUPPRESSION PANELS

Number	Panel Name	Type
1	Equipment Room Gas Control Panel	C-TEC
2	Equipment Room Remote Status Unit 1 (RSU 1)	C-TEC
3	Equipment Room Remote Status Unit 2 (RSU 2)	C-TEC
4	Equipment Room Remote Status Unit 3 (RSU 3)	C-TEC
5	Communications Room Gas Control Panel	C-TEC
6	Communications Room Remote Status Unit 1 (RSU 1)	C-TEC

ANNEXURE 9 – LIST OF FIRE EXTINGUISHERS

ID NO.	TYPE	LOCATION
HR1	DCP	HEADRACE DIESEL GEN
HR2	DCP	HEADRACE DIESEL GEN
HR3	DCP	HEADRACE DIESEL GEN
HR4	DCP	HEADRACE 3 & 4
HR5	DCP	HEADRACE 3 & 4
HR6	DCP	HEADRACE 1 & 2
HR7	DCP	HEADRACE 1 & 2
SS1	DCP	SURGE SHAFT
SS2	DCP	SURGE SHAFT
SS3	CO2	SURGE SHAFT
VC1	DCP	VISITORS CENTRE
VC2	DCP	VISITORS CENTRE
VC3	DCP	VISITORS CENTRE
VC4	DCP	VISITORS CENTRE
VC5	DCP	VISITORS CENTRE
JRSQ1	DCP	JAGERSRUST SINGLE QUARTERS
JRSQ2	DCP	JAGERSRUST SINGLE QUARTERS
JRSQ3	DCP	JAGERSRUST SINGLE QUARTERS
JRSQ4	CO2	JAGERSRUST SINGLE QUARTERS
JRSQ5	DCP	JAGERSRUST SINGLE QUARTERS
MVGH1	DCP	MOUNTAIN VIEW GUEST HOUSE
MVGH2	DCP	MOUNTAIN VIEW GUEST HOUSE
TGH1	DCP	TUGELA GUEST HOUSE
TGH2	DCP	TUGELA GUEST HOUSE
MS1	DCP	MAIN STORES
MS2	DCP	MAIN STORES
MS3	DCP	MAIN STORES
MS4	CO2	MAIN STORES
MS5	CO2	MAIN STORES
MS6	DCP	MAIN STORES
MS7	DCP	MAIN STORES
MS8	DCP	MAIN STORES
MS9	DCP	MAIN STORES
MS10	CO2	MAIN STORES
MS11	CO2	MAIN STORES
MS12	DCP	MAIN STORES
MS13	DCP	MAIN STORES
MS14	DCP	MAIN STORES
MS15	DCP	MAIN STORES
MATOS1	50KG WU	MAIN ACCESS TUNNEL OIL STORE
TR1		TAILTACE
TR2		TAILTACE
TR3		TAILTACE
TR4		TAILTACE
TR5		TAILTACE
TR6		TAILTACE
FP4(1)	CO2	FIRE POINT 4
FP4(2)	CO2	FIRE POINT 4
FP4(3)	CO2	FIRE POINT 4
FP4(4)	CO2	FIRE POINT 4
FP4(5)	CO2	FIRE POINT 4
FP4(6)	CO2	FIRE POINT 4
FP4(7)	CO2	FIRE POINT 4

FP4(8)	CO2	FIRE POINT 4
FP4(9)	CO2	FIRE POINT 4
FP4(10)	CO2	FIRE POINT 4
FP4(11)	DCP	FIRE POINT 4
FP4(12)	DCP	FIRE POINT 4
FP4(13)	DCP	FIRE POINT 4
FP4(14)	DCP	FIRE POINT 4
FP4(15)	DCP	FIRE POINT 4
FP4(16)	DCP	FIRE POINT 4
FP4(17)	DCP	FIRE POINT 4
FP4W1	75KG WU	FIRE POINT 4
FP4W2	50KG WU	FIRE POINT 4
FP4W3	75KG WU	FIRE POINT 4
TH1	DCP	TRANSFORMER HALL
TH2	DCP	TRANSFORMER HALL
TH3	CO2	TRANSFORMER HALL
TH4	DCP	TRANSFORMER HALL
TH5	CO2	TRANSFORMER HALL
TH6	CO2	TRANSFORMER HALL
CP43	CO2	CHILLER PLANT
CP44	CO2	CHILLER PLANT
WP1	DCP	WATER PLANT
LM1	DCP	LOWER MACHINE HALL UNIT 1
LM2	DCP	LOWER MACHINE HALL UNIT 1
LM3	CO2	LOWER MACHINE HALL UNIT 1
LM4	CO2	LOWER MACHINE HALL UNIT 1
LM5	CO2	LOWER MACHINE HALL UNIT 1
LM6	DCP	LOWER MACHINE HALL UNIT 2
LM7	DCP	LOWER MACHINE HALL UNIT 2
LM8	CO2	LOWER MACHINE HALL UNIT 2
LM9	CO2	LOWER MACHINE HALL UNIT 2
LM10	CO2	LOWER MACHINE HALL UNIT 2
LM11	DCP	LOWER MACHINE HALL UNIT 3
LM12	DCP	LOWER MACHINE HALL UNIT 3
LM13	CO2	LOWER MACHINE HALL UNIT 3
LM14	CO2	LOWER MACHINE HALL UNIT 3
LM15	CO2	LOWER MACHINE HALL UNIT 3
LM16	DCP	LOWER MACHINE HALL UNIT 4
LM17	DCP	LOWER MACHINE HALL UNIT 4
LM18	CO2	LOWER MACHINE HALL UNIT 4
LM19	CO2	LOWER MACHINE HALL UNIT 4
LM20	CO2	LOWER MACHINE HALL UNIT 4
FP3(1)	DCP	FIRE POINT 3 BATTERY ROOM
FP3(2)	DCP	FIRE POINT 3 BATTERY ROOM
FP3(3)	CO2	FIRE POINT 3 BATTERY ROOM
FP3(4)	CO2	FIRE POINT 3 BATTERY ROOM
FP3W1	DCP 50KG	FIRE POINT 3 BATTERY ROOM
FP3W2	DCP 50KG	FIRE POINT 3 BATTERY ROOM
FP3W3	DCP 75KG	FIRE POINT 3 BATTERY ROOM
BAT1	DCP	BATTERY ROOM
BAT2	DCP	BATTERY ROOM
MH1	CO2	MACHINE HALL
MH2	DCP	MACHINE HALL
MH3	DCP	MACHINE HALL
MH4	DCP	MACHINE HALL
MH5	CO2	MACHINE HALL
MH6	DCP	MACHINE HALL
MH7	DCP	MACHINE HALL

MH8	CO2	MACHINE HALL
MH9	CO2	MACHINE HALL
MH10	CO2	MACHINE HALL
MH11	CO2	MACHINE HALL
MH12	CO2	MACHINE HALL
MH13	CO2	MACHINE HALL
MH14	CO2	MACHINE HALL
MH15	CO2	MACHINE HALL
MH16	CO2	MACHINE HALL
MH17	CO2	MACHINE HALL
MH18	CO2	MACHINE HALL
MH19	CO2	MACHINE HALL
MH20	CO2	MACHINE HALL
MH21	CO2	MACHINE HALL
MH22	CO2	MACHINE HALL
MH23	CO2	MACHINE HALL
MH24	CO2	MACHINE HALL
MH25	CO2	MACHINE HALL
MH26	CO2	MACHINE HALL
MH27	DCP	MACHINE HALL
FP2(1)	CO2	FIRE POINT 2
FP2(2)	CO2	FIRE POINT 2
FP2(3)	DCP	FIRE POINT 2
FP2(4)	DCP	FIRE POINT 2
FP2W1	50KG WU	FIRE POINT 2
FP2W2	50KG WU	FIRE POINT 2
VH1	CO2	UNIT 1 S/V
VH2	DCP	UNIT 1 S/V
VH3	DCP	BETWEEN UNIT 1 & 2 S/V
VH4	DCP	BETWEEN UNIT 1 & 2 S/V
VH5	CO2	UNIT 2 S/V
VH6	DCP	UNIT 2 S/V
VH7	DCP	BOILER WORKSHOP
VH8	DCP	BOILER WORKSHOP
VH9	DCP	BOILER WORKSHOP
VH10	DCP	BOILER WORKSHOP
VH11	CO2	UNIT 3 S/V
VH12	DCP	UNIT 3 S/V
VH13	DCP	BETWEEN UNIT 3 & 4 S/V
VH14	DCP	BETWEEN UNIT 3 & 4 S/V
VH15	DCP	UNIT 4 S/V
VH16	CO2	UNIT 4 S/V
VH17	CO2	BETWEEN BOILER SHOP & S/V 3
GV1(1)	DCP	UNIT 1 G/V ENCLOSURE
GV1(2)	CO2	UNIT 1 G/V ENCLOSURE
GV2(1)	DCP	UNIT 2 G/V ENCLOSURE
GV2(2)	CO2	UNIT 2 G/V ENCLOSURE
GV3(1)	DCP	UNIT 3 G/V ENCLOSURE
GV3(2)	CO2	UNIT 3 G/V ENCLOSURE
GV4(1)	DCP	UNIT 4 G/V ENCLOSURE
GV4(2)	CO2	UNIT 4 G/V ENCLOSURE
ETTS1	DCP	EXT TUNNEL TOOL STORE
ETTS2	DCP	EXT TUNNEL TOOL STORE
ETW1	DCP 50KG	EXT TUNNEL TOOL STORE
DGW1	DCP 50KG	DRAINAGE GALLERY
DGW2	DCP 50KG	DRAINAGE GALLERY
CB1	CO2	CONTROL BLOCK
CB2	CO2	CONTROL BLOCK

CB3	CO2	CONTROL BLOCK TELECOMMS
CB4	CO2	CONTROL BLOCK TELECOMMS
CB5	CO2	CONTROL BLOCK AIR CONDITIONING
CB6	CO2	CONTROL BLOCK AIR CONDITIONING
CB7	CO2	CONTROL BLOCK SWITCHGEAR ROOM
CB8	CO2	CONTROL BLOCK SWITCHGEAR ROOM
CB9	CO2	CONTROL BLOCK CONTROL ROOM
CB10	CO2	CONTROL BLOCK CONTROL ROOM
CB11	CO2	CONTROL BLOCK CONTROL ROOM
CB12	CO2	CONTROL BLOCK CONTROL ROOM
CB13	CO2	CONTROL BLOCK CONTROL ROOM
CB14	CO2	CONTROL BLOCK CONTROL ROOM
CB15	CO2	CONTROL BLOCK CONTROL ROOM
CB16	CO2	CONTROL BLOCK CONTROL ROOM
CB17	CO2	CONTROL BLOCK CANTEEN
CB18	CO2	CONTROL BLOCK CANTEEN
CB19	CO2	CONTROL BLOCK SWITCHGEAR ROOM
CB20	CO2	CONTROL BLOCK SWITCHGEAR ROOM
CB21	CO2	CONTROL BLOCK SWITCHGEAR ROOM
CB22	CO2	CONTROL BLOCK SWITCHGEAR ROOM
SB1	DCP	SURFACE BUILDING SWITCHBOARD
SB2	DCP	SURFACE BUILDING SWITCHBOARD
SB3	DCP	SURFACE BUILDING DIESEL GEN
SB4	DCP	SURFACE BUILDING DIESEL GEN
SB5	DCP	SURFACE BUILDING DIESEL GEN
SB6	DCP	SURFACE BUILDING DIESEL GEN
SBW1	DCP 50KG	SURFACE BUILDING DIESEL GEN
SBW2	DCP 50KG	SURFACE BUILDING DIESEL GEN
SBW3	DCP 50KG	SURFACE BUILDING DIESEL GEN
SB7	DCP	SURFACE BUILDING ENTRANCE
SB8	DCP	SURFACE BUILDING ENTRANCE
SB9	DCP	SURFACE BUILDING SECURITY OFFICE
SB10	DCP 1.5KG	SURFACE BUILDING B/ROOM (OUTSIDE)
SB11	DCP 1.5KG	SURFACE BUILDING B/ROOM (OUTSIDE)
SB12	DCP 3KG	SURFACE BUILDING B/ROOM (OUTSIDE)
SB13	DCP 3KG	SURFACE BUILDING B/ROOM (OUTSIDE)
SB14	DCP 3KG	SURFACE BUILDING B/ROOM (OUTSIDE)
SB15	DCP 3KG	SURFACE BUILDING B/ROOM (OUTSIDE)
SB16	DCP 1.5KG	SURFACE BUILDING B/ROOM (OUTSIDE)
SB17	DCP 1.5KG	SURFACE BUILDING GYM
SB18	DCP 1.5KG	SURFACE BUILDING MEETING ROOM
SB19	DCP 1.5KG	SURFACE BUILDING KITCHEN (OUTSIDE)
SB20	DCP 3KG	SURFACE BUILDING KITCHEN (OUTSIDE)
SB21	DCP 3KG	SURFACE BUILDING KITCHEN (OUTSIDE)
SB22	DCP 1.5KG	SURFACE BUILDING PASSAGE

ANNEXURE 10 – LIST OF HYDRANTS, HOSES & HOSE REELS

ID NO.	TYPE	LOCATION
MSFH1	FIRE HOSE	MAIN STORES
MSFH2	FIRE HOSE	MAIN STORES
MSFH3	FIRE HOSE	MAIN STORES
MSFH4	FIRE HOSE	MAIN STORES
MSHR	HOSE REELS	MAIN STORES
MSHY	HYDRANT	MAIN STORES
DG13	HYDRANT	SURFACE BUILDING
DG14	HYDRANT	SURFACE BUILDING
SB	FIRE HOSE	SURFACE BUILDING
FP3H1	HOSE 30M	FIRE POINT 3 BATTERY ROOM
FP3H2	HOSE 30M	FIRE POINT 3 BATTERY ROOM
FP3H3	HOSE 30M	FIRE POINT 3 BATTERY ROOM
FHU1(1)	HYDRANT	UNIT 1 MACHINE HALL (TURBINE FLOOR – 1177.5)
FHU1(2)	HYDRANT	UNIT 1 MACHINE HALL (TURBINE FLOOR – 1177.5)
FHU2(1)	HYDRANT	UNIT 2 MACHINE HALL (TURBINE FLOOR – 1177.5)
FHU2(2)	HYDRANT	UNIT 2 MACHINE HALL (TURBINE FLOOR – 1177.5)
FHBC	HYDRANT	BLOWDOWN COMPRESSORS (TURBINE FLOOR – 1177.5)
FHWP	HYDRANT	WATER PLANT (TURBINE FLOOR – 1177.5)
FHU3(1)	HYDRANT	UNIT 3 MACHINE HALL (TURBINE FLOOR – 1177.5)
FHU3(2)	HYDRANT	UNIT 3 MACHINE HALL (TURBINE FLOOR – 1177.5)
FHU4(1)	HYDRANT	UNIT 4 MACHINE HALL (TURBINE FLOOR – 1177.5)
FHU4(2)	HYDRANT	UNIT 4 MACHINE HALL (TURBINE FLOOR – 1177.5)
FHU1	HYDRANT	UNIT 1 MACHINE HALL (GENERATOR FLOOR – 1184)
FHU2	HYDRANT	UNIT 2 MACHINE HALL (GENERATOR FLOOR – 1184)
FHU4	HYDRANT	UNIT 4 MACHINE HALL (GENERATOR FLOOR – 1184)
TF	FIRE HOSE STATION	MACHINE HALL (TURBINE FLOOR – 1177.5)

GF	FIRE HOSE STATION	MACHINE HALL (GENERATOR FLOOR – 1184)
H21	HYDRANT	VALVE HALL
H22	HYDRANT	VALVE HALL
H23	HYDRANT	VALVE HALL
VH	FIRE HOSE STATION	VALVE HALL
MATH1	HYDRANT	MAIN ACCESS TUNNEL
MATH2	HYDRANT	MAIN ACCESS TUNNEL
MATH3	HYDRANT	MAIN ACCESS TUNNEL
MATH4	HYDRANT	MAIN ACCESS TUNNEL
MAT	FIRE HOSE STATION	MAIN ACCESS TUNNEL
D&D GAL	HYDRANT	DRAINAGE GALLERY
D&D GAL	HYDRANT	DRAINAGE GALLERY
D&D GAL	FIRE HOSE STATION	DRAINAGE GALLERY
D&D GAL	FIRE HOSE STATION	DRAINAGE GALLERY

ANNEXURE 11 – LIST OF FOAM STORAGE SYSTEMS

Transformer Foam Storage Tanks:

Tank Capacity	Areas being Served
2m ³ Foam Tank	Generator/Motor Transformer 1
2m ³ Foam Tank	Generator/Motor Transformer 2 and Service Transformer 1
4m ³ Foam Tank	Station Transformers 1 & 2
2m ³ Foam Tank	Generator/Motor Transformer 3
2m ³ Foam Tank	Generator/Motor Transformer 4 and Service Transformer 2

Portable Foam Trolleys:

Serial No.	Areas being Served
FPSTS5	Surface Building
FGS3276	Main Access Tunnel
FG1798	Machine Hall
F2FU2	Machine Hall
FGS3278	Valve Hall
FGS3243	Lower Machine Hall

ANNEXURE 12 – LIST OF FIRE DAMPERS

Control Block: Control Room, Equipment Room & False Floor – Level 1191.15m [Drawing – 0.48/3110]			
Damper No.	Location	Normal Position	Operational Method
FDCB-1	Level 1191 Equipment Room	Open	Solenoid Operated
FDCB-2	Level 1191 Equipment Room/ Control Room False Floor	Open	Solenoid Operated
FDCB-3	Level 1191 Equipment Room/ Control Room False Floor	Open	Solenoid Operated
Control Block: A/C Plantroom, Communications Room & Offices – Level 1187m [Drawing – 0.48/3110]			
Damper No.	Location	Normal Position	Operational Method
FDCB-4	Level 1187 A/C Plant Room	Open	Solenoid Operated
Control Block: Control Room, Equipment Room & Offices – Levels 1191.15m & 1187m [Drawing – 0.48/3110]			
Damper No.	Location	Normal Position	Operational Method
FDCB-5	Level 1191 Equipment Room	Open	Fusible Link
FDCB-6	Level 1187 Offices.	Open	Fusible Link
FDCB-7	Level 1187 Offices.	Open	Fusible Link
FDCB-8	Level 1187 Offices.	Open	Fusible Link
FDCB-9	Level 1187 Offices.	Open	Fusible Link
FDCB-10	Level 1187 Offices.	Open	Fusible Link
FDCB-11	Level 1187 Offices.	Open	Fusible Link
FDCB-12	Level 1187 Offices.	Open	Fusible Link
FDCB-13	Level 1187 Offices.	Open	Fusible Link
FDCB-14	Level 1187 Offices.	Open	Fusible Link
FDCB-15	Level 1187 Offices.	Open	Fusible Link
Control Block: Cable Spreading Room – Level 1180.72m [Drawing – 0.48/3215]			
Damper No.	Location	Normal Position	Operational Method
FDCB-16	Level 1180.72 Cable Spreading Room	Open	Fusible Link
FDCB-17	Level 1180.72 Cable Spreading Room	Open	Fusible Link
FDCB-18	Level 1180.72 Cable Spreading Room	Open	Fusible Link
FDCB-19	Level 1180.72 Cable Spreading Room	Open	Fusible Link
Control Block: Switchgear Room – Level 1184m [Drawing – 0.48/3291]			
Damper No.	Location	Normal Position	Operational Method
FDCB-19	Level 1184 Switchgear Room	Open	Fusible Link
FDCB-20	Level 1184 Switchgear Room	Open	Fusible Link
FDCB-21	Level 1184 Switchgear Room	Open	Fusible Link
FDCB-22	Level 1184 Switchgear Room	Open	Fusible Link
Control Block: Control Room, Equipment Room & Offices – Levels 1191.15m & 1187m			
Damper No.	Location	Normal Position	Operational Method

FDCB-23	Level 1191 Equipment Room	Open	Fusible Link
FDCB-24	Cable Spreading Room	Open	Fusible Link
FDCB-25	Level 1187 Offices.	Open	Fusible Link
FDCB-26	Level 1187 Comms Room	Open	Fusible Link
Control Block: Dry Transformers – Level 1170m [Drawing – 0.48/2507]			
Damper No.	Location	Normal Position	Operational Method
FD1	Level 1170 Dry Transformers	Open	Fusible Link
Surface Building: Level 1349.2m [Drawings – 0.48/2501 & 0.48/4887]			
Damper No.	Location	Normal Position	Operational Method
FD-1	Level 1349.2 Fan Room Drw. 0.48/2501	Open	Fusible Link
FD-2	Level 1349.2 Fan Room Drw. 0.48/2501	Open	Fusible Link
FD-3	Level 1349.2 Security Room Drw. 0.48/2501	Open	Fusible Link
FD1	Level 1349.2 Drw. 0.48/4887	Open	Fusible Link
FD2	Level 1349.2 Drw. 0.48/4887	Open	Fusible Link
FD3	Level 1349.2 Drw. 0.48/4887	Open	Fusible Link
FD4	Level 1349.2 Drw. 0.48/4887	Open	Fusible Link
FD5	Level 1349.2 Drw. 0.48/4887	Open	Fusible Link
FD6	Level 1349.2 Drw. 0.48/4887	Open	Fusible Link
Drainage Tunnel & Valve Hall: Levels 1153m & 1184m [Drawing – 0.48/4275]			
Damper No.	Location	Normal Position	Operational Method
FDVH-1	Level 1153 Drainage Sump	Open	Solenoid Operated
FDVH-2	Level 1184 Valve Hall, Units 1&2 side	Close	Solenoid Operated
Machine Hall Heading Damper:			
Damper No.	Location	Normal Position	Operational Method
FDMH	Machine Hall Heading Damper Units 1&2 side	Close	Solenoid Operated
Transformer Hall Heading Damper:			
Damper No.	Location	Normal Position	Operational Method
FDTH	Transformer Hall Heading Damper Units 1&2 side	Close	Solenoid Operated
Busbar Tunnel 1: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-21	Level 1184 Busbar Tunnel 1	Open	Solenoid Operated
FDTH-22	Level 1184 Busbar Tunnel 1	Open	Solenoid Operated
FDTH-16	Level 1184 Busbar Tunnel 1	Open	Solenoid Operated
MH1	Level 1184 Busbar Tunnel 1	Open	Solenoid Operated
Busbar Tunnel 2: – Level 1184m [Drawing – 0.48/4274]			
Damper	Location	Normal Position	Operational Method

No.			
FDTH-23	Level 1184 Busbar Tunnel 2	Open	Solenoid Operated
FDTH-24	Level 1184 Busbar Tunnel 2	Open	Solenoid Operated
FDTH-17	Level 1184 Busbar Tunnel 2	Open	Solenoid Operated
MH2	Level 1184 Busbar Tunnel 2	Open	Solenoid Operated
Busbar Tunnel 3: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-25	Level 1184 Busbar Tunnel 3	Open	Solenoid Operated
FDTH-26a	Level 1184 Busbar Tunnel 3	Open	Solenoid Operated
FDTH-18	Level 1184 Busbar Tunnel 3	Open	Solenoid Operated
MH3	Level 1184 Busbar Tunnel 3	Open	Solenoid Operated
Busbar Tunnel 4: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-26b	Level 1184 Busbar Tunnel 4	Open	Solenoid Operated
FDTH-27	Level 1184 Busbar Tunnel 4	Open	Solenoid Operated
FDTH-19	Level 1184 Busbar Tunnel 4	Open	Solenoid Operated
MH4	Level 1184 Busbar Tunnel 4	Open	Solenoid Operated
Generator Transformer 1: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-1	Level 1184 Generator Transformer 1	Open	Solenoid Operated
FDTH-2	Level 1184 Generator Transformer 1	Open	Solenoid Operated
FDTH-3	Level 1184 Generator Transformer 1	Open	Solenoid Operated
Generator Transformer 2: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-6	Level 1184 Generator Transformer 2	Open	Solenoid Operated
FDTH-7	Level 1184 Generator Transformer 2	Open	Solenoid Operated
Generator Transformer 3: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-10	Level 1184 Generator Transformer 3	Open	Solenoid Operated
FDTH-11	Level 1184 Generator Transformer 3	Open	Solenoid Operated
Generator Transformer 4: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-14	Level 1184 Generator Transformer 4	Open	Solenoid Operated
FDTH-15	Level 1184 Generator Transformer 4	Open	Solenoid Operated
Auxiliary Transformer 1 (Units 1&2): – Level 1184m [Drawing – 0.48/4274]			

Damper No.	Location	Normal Position	Operational Method
FDTH-4	Level 1184 Auxiliary Transformer 1 (Units 1&2)	Open	Solenoid Operated
FDTH-5	Level 1184 Auxiliary Transformer 1 (Units 1&2)	Open	Solenoid Operated
Auxiliary Transformer 2 (Units 3&4): – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-12	Level 1184 Auxiliary Transformer 2 (Units 3&4)	Open	Solenoid Operated
FDTH-13	Level 1184 Auxiliary Transformer 2 (Units 3&4)	Open	Solenoid Operated
Station Transformer Transformer 1: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-8	Level 1184 Station Transformer 1	Open	Solenoid Operated
Station Transformer Transformer 2: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-9	Level 1184 Station Transformer 2	Open	Solenoid Operated
Damper TH28: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-28	Level 1184 Busbar Shaft	Open	Solenoid Operated
Damper TH29: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-29	Level 1184 Busbar Shaft	Open	Solenoid Operated
Damper TH30: – Level 1184m [Drawing – 0.48/4274]			
Damper No.	Location	Normal Position	Operational Method
FDTH-30	Level 1184 Busbar Shaft	Open	Solenoid Operated
Additional Dampers on the Plant:			
Damper No.	Location	Normal Position	Operational Method
MH Extraction	Machine Hall Extraction Fan Dampers	Open	Fusible Link
CS	Common Services Bay Dampers	Open	Fusible Link
Penstock 2	Penstock 2 – Door leading to storage area.	Open	Fusible Link
Penstock 1	Penstock 1 – Door leading to Tunnel	Open	Fusible Link
Auxiliary Vent Fans	Above roller doors leading to auxiliary vent fans.	Open	Fusible Link
GT 1 Offices	GT 1 – Above offices.	Open	Fusible Link

ANNEXURE 13 – MONTHLY INSPECTION OF GASEOUS SUPPRESSION SYSTEM

Inspection, Servicing & Testing Sheet			
Company Name : _____ Competent Person : _____ SAQCC Reg. No. : _____ Qualification : _____ Level : _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Gaseous Fire Suppression Systems Monthly Inspection of Gaseous Fire Suppression Systems		
Item	Task Description	Completed	Notes
1	Conduct inspection of Equipment Room and Comms Room Gaseous Fire Suppression Systems in accordance with the instructions.		
Deficiencies corrected during the Monthly Inspection of Gaseous Fire Suppression Systems.			
Deficiencies remaining after the Monthly Inspection of Gaseous Fire Suppression Systems.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
		Work Completed by:	Approved by:
Name	: _____	_____	
Date	: _____	_____	
Signature	: _____	_____	

ANNEXURE 14 – 6-MONTHLY INSPECTION OF GASEOUS SUPPRESSION SYSTEMS

Inspection, Servicing & Testing Sheet			
Company Name : _____ Competent Person : _____ SAQCC Reg. No. : _____ Qualification : _____ Level : _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Gaseous Fire Suppression Systems 6-Monthly Inspection of Gaseous Fire Suppression Systems		
Item	Task Description	Completed	Notes
1	Conduct inspection of Equipment Room and Comms Room Gaseous Fire Suppression Systems in accordance with the instructions.		
Deficiencies corrected during the 6-Monthly Inspection of Gaseous Fire Suppression Systems.			
Deficiencies remaining after the 6-Monthly Inspection of Gaseous Fire Suppression Systems.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
Work Completed by:		Approved by:	
Name	: _____		_____
Date	: _____		_____
Signature	: _____		_____

ANNEXURE 15 – 6-MONTHLY INSPECTION OF FIRE DOORS

Inspection, Servicing & Testing Sheet			
Company Name : _____ Competent Person : _____ SAQCC Reg. No. : _____ Qualification : _____ Level : _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Fire Doors 6-Monthly Inspection of Fire Doors		
Item	Task Description	Completed	Notes
1	Conduct inspection of Fire Doors in accordance with the instructions.		
Deficiencies corrected during the 6-Monthly Inspection of Fire Doors.			
Deficiencies remaining after the 6-Monthly Inspection of Fire Doors.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:		Approved by:
Name	: _____		: _____
Date	: _____		: _____
Signature	: _____		: _____

ANNEXURE 16 – 6-MONTHLY INSPECTION OF FIRE RETICULATION MAINS

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Fire Reticulation Mains 6-Monthly Inspection of Fire Reticulation Mains	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Conduct inspection of Fire Reticulation Mains in accordance with the instructions.		
Deficiencies corrected during the 6-Monthly Inspection of Fire Reticulation Mains.			
Deficiencies remaining after the 6-Monthly Inspection of Fire Reticulation Mains.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
Name		Work Completed by:	Approved by:
Date	: _____	: _____	: _____
Signature	: _____	: _____	: _____

ANNEXURE 17 – YEARLY OF FIRE EXTINGUISHERS

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Fire Extinguishers Yearly Maintenance	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	All extinguishers shall be properly cleaned and free of any dirt, grease or foreign material before inspection and service.		
2	Extinguishers shall be carefully inspected for any rust, corrosion, dents, pitting or any other damage or wear.		
3	Inspection for any damaged, missing or substituted parts shall be carried out.		
4	Check for test and maintenance/service dates and determine if the extinguisher is due for hydrostatic pressure testing.		
5	Check that the operating instructions on the extinguishers are readable and correct.		
6	Inspect the pressure gauge indicator to determine if it is within operable range, if the correct gauge is installed and that there is no evidence of leakage.		
7	Weigh each extinguisher to ensure adequate extinguishing agent is present. Top up or recharge extinguishers as required.		
8	Remove pull pin / ring pin to check for free movement. Replace if bent or removal appears to be difficult and replace tamper seal.		
9	Remove the discharge hoses and nozzles for inspection. Ensure nozzles and hoses are fit for use, unobstructed, not cracked or worn. Clean and renew where necessary.		
10	Inspection and check lever / handle for smooth operation and movement and also inspect for damage. Clean, rectify and renew where necessary.		
11	Renew all seals, diaphragms and washers as required during the		

	service.		
12	Complete and attach service tags / labels to extinguishers and record all information on data sheets.		
13	Submit service certificates.		
14	<p>Ensure that any extinguisher that is removed from its location for examination and hydrostatic testing, is replaced with another temporary extinguisher that conforms to the following requirements:</p> <ul style="list-style-type: none"> • Extinguishers shall be uniquely identified, labelled and kept on a register which shall be submitted to the employer. • Safety seals and tampering devices/indicators are not broken or missing. • Extinguishing agent quantity is adequate, as determined by weighing or lifting. • Pressure gauge or indicator is within the operable range or position (green). • No obvious physical damage, corrosion, leakage or clogged nozzle exists. • Hose and nozzle are in a good condition. • Temporary extinguishers shall have the necessary certification and it shall be produced on delivery of temporary extinguishers. 		
Deficiencies corrected during the Yearly Maintenance.			
Deficiencies remaining after the Yearly Maintenance.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:	Approved by:	
Name	:	_____	_____
Date	:	_____	_____
Signature	:	_____	_____

ANNEXURE 18 – YEARLY MAINTENANCE OF HYDRANTS

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Fire Hydrants Yearly Maintenance	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Visually inspect the hydrant valve, standpipe and respective isolating valves (where applicable) for any signs of leakage or damage.		
2	Check that all hydrant valves are accessible, hand-wheels are securely fitted and that blanking caps are in good condition and in place (where applicable).		
3	Check and inspect all seals and washers. Replace as necessary.		
4	Inspect hydrant standpipes for signs of corrosion, damage or leaks.		
5	Check that all hydrant cabinets are clearly marked and in good condition, accessible and contains only the necessary equipment.		
6	Hydrant Hoses - Check all branch pipes, nozzles and hose couplings are in good condition, compatible with the hydrant valves and properly stowed.		
7	Hydrant Hoses - Unwound hydrant hose and inspect the entire hose for any cracks, cuts, leaks, wear and any other damage.		
8	Hydrant Hoses - If any anomalies are found on a hose, a hydrostatic test shall be conducted on the hose in accordance with the following instructions: <ul style="list-style-type: none"> • Connect the hose to the testing device. • Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment. • Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for 		

	<p>personal injury during application of pressure and inspection of the hose.</p> <ul style="list-style-type: none"> • Fill the hose completely with water by venting air from the nozzle. • Mark the hose at each coupling to determine if the hose slips from the coupling during the test. • Close the nozzle. • Slowly raise the pressure in the hose to the test pressure of 16 bar (gauge). Maintain the service pressure for at least 5 minutes. • Inspect the entire length of hose and couplings for leakage or signs of degradation. • Note and record any leakage. • Slowly remove pressure from the hose. • Inspect marks on the couplings to determine if the coupling has moved during the test. • Disconnect the hose from the testing device. • Drain and dry the hose. • Record results, including date of testing, and return the hose to storage. 		
9	<p>Foam Concentrate and Loose Equipment:</p> <ul style="list-style-type: none"> • Check that the equipment inside the cabinet is in accordance with the cabinet contents list. • Check that equipment items are compatible and in good condition. • Check that foam concentrate containers are in good condition, seals are intact and the labels are legible. • Check that foam concentrate levels are correct. • Check signage for legibility. 		
10	<p>Check and ensure all components are free of damage and defects.</p>		
11	<p>A service label must be fitted on completion of the annual service.</p>		

Deficiencies corrected during the Yearly Maintenance.		
Deficiencies remaining after the Yearly Maintenance.		
Specify any corrective action/follow-up.		
Cross-referenced documentation. (Reports, procedures, etc.)		
Close-out:		
Name	Work Completed by:	Approved by:
Date	:	:
Signature	:	:

ANNEXURE 19 – YEARLY MAINTENANCE OF HOSE REELS

Inspection, Servicing & Testing Sheet			
Company Name : _____		Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Hose Reels Yearly Maintenance	
Competent Person : _____			
SAQCC Reg. No. : _____			
Qualification : _____			
Level : _____			
Item	Task Description	Completed	Notes
1	Check that the locations of hose reels are marked up correctly on the location plan/register.		
2	Check that the hose reel is readily accessible with no obstacles restricting its access.		
3	Check that location signs are correctly located and visible.		
4	Check that operating instructions are readable and correct.		
5	Check for any damage or corrosion of components that could adversely affect the operation of the reel.		
6	Check that the hose reel is securely mounted and stable. Inspect the drum and discs for any signs of corrosion and damage. Make sure the hose reel drum rotates freely in both directions.		
7	Check all hoses for kinking, excessive damage or wear, or collapse.		
8	If any anomalies are found on a hose, a hydrostatic test shall be conducted on the hose in accordance with the following instructions: <ul style="list-style-type: none"> • Connect the hose to the testing device. • Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment. • Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for personal injury during application of pressure and inspection of the hose. • Fill the hose completely with 		

	water by venting air from the nozzle. <ul style="list-style-type: none"> • Close the nozzle. • Slowly raise the pressure in the hose to the test pressure of 16 bar (gauge). Maintain the service pressure for at least 5 minutes. • Inspect the entire length of hose and couplings for leakage or signs of degradation. • Note and record any leakage. • Slowly remove pressure from the hose. • Disconnect the hose from the testing device. • Drain and dry the hose. • Record results, including date of testing, and return the hose to storage. 		
9	Make sure nozzles are in place and inspect for any blockage, cracks, defects and damage. Ensure nozzle is in a closed position.		
10	Check that no unauthorized connections or tapping have been made to the hose reel water supply piping visible at the hose reel.		
11	A service label must be fitted to the hose reel on completion of the annual service.		
Deficiencies corrected during the Yearly Maintenance.			
Deficiencies remaining after the Yearly Maintenance.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
Name		Work Completed by:	Approved by:
Date	:	_____	_____
Signature	:	_____	_____

ANNEXURE 20 – YEARLY INSPECTION OF GASEOUS FIRE PROTECTION SYSTEMS

Inspection, Servicing & Testing Sheet			
Company Name : _____ Competent Person : _____ SAQCC Reg. No. : _____ Qualification : _____ Level : _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Gaseous Fire Suppression Systems Yearly Inspection of Gaseous Fire Suppression Systems		
Item	Task Description	Completed	Notes
1	Conduct inspection of Equipment Room and Comms Room Gaseous Fire Suppression Systems in accordance with the instructions.		
Deficiencies corrected during the Yearly Inspection of Gaseous Fire Suppression Systems.			
Deficiencies remaining after the Yearly Inspection of Gaseous Fire Suppression Systems.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:	Approved by:	
Name	: _____	_____	
Date	: _____	_____	
Signature	: _____	_____	

ANNEXURE 21 – YEARLY INSPECTION OF FIRE STOPPING & INTUMESCENT COATINGS

Inspection, Servicing & Testing Sheet			
Company Name	:	_____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Passive Protection Systems Yearly Inspection of Fire stopping and Intumescent Coatings
Competent Person	:	_____	
SAQCC Reg. No.	:	_____	
Qualification	:	_____	
Level	:	_____	
Item	Task Description	Completed	Notes
1	Conduct inspection of fire breaks and intumescent coatings of cables.		
2	Ensure cable coated areas and penetrations are labelled and recorded on a register.		
Deficiencies corrected during the Yearly Inspection of Cable Coatings and Penetrations.			
Deficiencies remaining after the Yearly Inspection of Cable Coatings and Penetrations.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
Name	Work Completed by:	Approved by:	
Date	: _____	_____	
Signature	: _____	_____	
	: _____	_____	

ANNEXURE 22 – YEARLY FUNCTIONAL TESTING OF GASEOUS FIRE PROTECTION SYSTEMS

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Gaseous Fire Suppression Systems Yearly Functional Testing of Gaseous Fire Suppression Systems	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Conduct yearly functional testing of Equipment Room and Comms Room Gaseous Fire Suppression Systems in accordance with the instructions.		
Deficiencies corrected during the Yearly Functional Testing of Gaseous Fire Suppression Systems.			
Deficiencies remaining after the Yearly Functional Testing of Gaseous Fire Suppression Systems.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
Name	Work Completed by: _____	Approved by: _____	
Date	: _____	_____	
Signature	: _____	_____	
	: _____	_____	

ANNEXURE 23 – YEARLY INTEGRITY TESTING OF GASEOUS FIRE PROTECTION SYSTEMS

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Gaseous Fire Suppression Systems Yearly Integrity Testing of Gaseous Fire Suppression Systems	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Conduct yearly integrity testing of Equipment Room and Comms Room Gaseous Fire Suppression Systems in accordance with the instructions.		
Deficiencies corrected during the Yearly Integrity Testing of Gaseous Fire Suppression Systems.			
Deficiencies remaining after the Yearly Integrity Testing of Gaseous Fire Suppression Systems.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:	Approved by:	
Name	: _____	_____	
Date	: _____	_____	
Signature	: _____	_____	

ANNEXURE 24 – YEARLY FOAM SAMPLING & TESTING

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Foam Storage Systems Yearly Foam Sampling	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Obtain a foam sample from all foam storage containers and ensure that each sample that is obtained is clearly marked with respect to its respective storage container.		
2	Testing of the foam concentrate properties shall be carried out by an approved foam laboratory. Tests shall include: <ul style="list-style-type: none"> • foam type • specific gravity • PH • undissolved solids/sediment • drain time • foam expansion ratio • spreading coefficient – film forming foams only • alcohol burn back test – alcohol resistant foams only 		
3	Submit test results.		
4	Submit certification for the foam concentrate.		
Deficiencies corrected during the Yearly Foam Sampling.			
Deficiencies remaining after the Yearly Foam Sampling.			
Specify any corrective action/follow-up.			

Cross-referenced documentation. (Reports, procedures, etc.)		
Close-out:		
	Work Completed by:	Approved by:
Name	: _____	_____
Date	: _____	_____
Signature	: _____	_____

ANNEXURE 25 – YEARLY WATER SUPPLY PROVING TEST

Inspection, Servicing & Testing Sheet			
Company Name : _____		Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Fire Hydrants Yearly Water Supply Proving Test	
Competent Person : _____			
SAQCC Reg. No. : _____			
Qualification : _____			
Level : _____			
Item	Task Description	Completed	Notes
1	Perform yearly water supply proving test on the most remote hydrant for the following areas: <ul style="list-style-type: none"> • Power Station Underground Area. • Transformer Hydrants. • Surface Administration Building. • Surface Building Stores Area. <ul style="list-style-type: none"> ○ Note that the yearly water supply proving test for the surface building stores area can be combined with the yearly performance test of the stores fire pump as the pump is required to operate upon testing of the hydrant. 		
2	The water supply proving test shall be conducted using an approved calibrated device and the parameters that shall be recorded include the pressure and flow at the discharge of the hydrant.		
3	The pressure and flow of the hydrant in the powerhouse shall be recorded against the corresponding dam level indication.		
4	The minimum flow and pressure of the hydrant at the most remote hydraulic point is 1200 L/m and 350 kPa.		
5	Ensure safe and effective drainage for the water to be discharged from the supply. A hydrant hose can be routed to drain and secured for this purpose.		
6	Open the hydrant valve to establish flow.		

7	Ensure that the flow is under pressure.		
8	Measure and record hydrant flow and pressure with approved calibrated test device.		
9	Restore the hydrant station to normal condition.		
10	Certification, indicating the flow and pressure of the hydrant must be supplied on completion of the test.		
Deficiencies corrected during the Yearly Water Supply Proving Test.			
Deficiencies remaining after the Yearly Water Supply Proving Test.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:	Approved by:	
Name	: _____	_____	
Date	: _____	_____	
Signature	: _____	_____	

ANNEXURE 26 – YEARY INSPECTION & PERFORMANCE TESTING OF STORES FIRE PUMP

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Stores Fire Pump Yearly Performance Test	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Conduct a visual inspection on the pump to identify any conspicuous problems.		
2	Monitor and record the reservoir level prior to the conducting the test.		
3	Check the pump control panel for any abnormal conditions.		
4	Manually or automatically start the pump. Automatic starting is initiated by opening a hydrant to establish flow through the line. The flow switch should activate the pump to start.		
5	Operate the pump for 5 minutes.		
6	While the pump is running: <ul style="list-style-type: none"> • Monitor the hydrant flow using an approved calibrated flow test device. 		
7	Close the hydrant and stop the pump.		
8	Monitor and record the reservoir level.		
9	Record any anomalies.		
10	Return the pump to its normal standby line-up on completion of the test.		
Deficiencies corrected during the Yearly Performance Test.			
Deficiencies remaining after the Yearly Performance Test.			
Specify any corrective action/follow-up.			
Cross-referenced documentation.			

(Reports, procedures, etc.)		
Close-out:		
	Work Completed by:	Approved by:
Name	:	
Date	:	
Signature	:	
	:	

ANNEXURE 27 – YEARY INSPECTION & FUNCTIONAL TESTING OF FIRE DAMPERS

Inspection, Servicing & Testing Sheet			
Company Name : _____		Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Fire Dampers Yearly Inspection & Functional Testing	
Competent Person : _____			
SAQCC Reg. No. : _____			
Qualification : _____			
Level : _____			
Item	Task Description	Completed	Notes
1	Yearly inspection & functional testing of all solenoid operated fire dampers covering the power station and surface building area shall be carried out.		
2	To verify the operation of the solenoid operated dampers, the respective fire detector in the room or area can be activated to set off the damper.		
3	The dampers in the transformer hall can alternatively be activated by the operation of a manual switch.		
4	For the mechanical dampers, remove or release the thermal link to ensure closure.		
5	Test a representative sample of the thermal link and replace all thermal links throughout the premises if the representative sample fails.		
6	Verify that the motorized dampers on the Control Room Air Handling Unit (AHU) operate correctly when the unit is switched from recirculating to fresh air mode.		
7	Verify that the motorized dampers on the Surface Building Air Handling Unit (AHU) operate correctly when the unit is switched from recirculating to fresh air mode.		
Deficiencies corrected during the Yearly Inspection & Functional Testing.			
Deficiencies remaining after the Yearly Inspection & Functional Testing.			

Specify any corrective action/follow-up.		
Cross-referenced documentation. (Reports, procedures, etc.)		
Close-out:		
	Work Completed by:	Approved by:
Name	:	:
Date	: _____	: _____
Signature	: _____	: _____
	: _____	: _____

ANNEXURE 28 – YEARLY SERVICE OF SELF-CONTAINED BREATHING APPARATUS

Inspection, Servicing & Testing Sheet			
Company Name : _____ Competent Person : _____ SAQCC Reg. No. : _____ Qualification : _____ Level : _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Self-Contained Breathing Apparatus Yearly Service		
Item	Task Description	Completed	Notes
1	All SCBA Sets are serviced in accordance with the Employer's approved instructions.		
11	Renew all seals, diaphragms and washers as required during the service.		
12	Complete and attach service tags / labels to SCBA Sets and record all information on data sheets.		
13	Submit service certificates.		
Deficiencies corrected during the Yearly Servicing.			
Deficiencies remaining after the Yearly Servicing.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:		Approved by:
Name	: _____		: _____
Date	: _____		: _____
Signature	: _____		: _____

ANNEXURE 29 – YEARLY INSPECTION OF FOAM STORAGE SYSTEMS

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Foam Storage Systems Yearly Inspection of Foam Storage Systems	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Conduct inspection of Foam Storage Systems in accordance with the instructions.		
Deficiencies corrected during the Yearly Inspection of Foam systems.			
Deficiencies remaining after Yearly Inspection of Foam Systems.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
Work Completed by:		Approved by:	
Name	: _____	_____	
Date	: _____	_____	
Signature	: _____	_____	

ANNEXURE 30 – 2-YEARLY INTERNAL INSPECTION OF SELF-CONTAINED BREATHING APPARATUS

Inspection, Servicing & Testing Sheet			
Company Name : _____ Competent Person : _____ SAQCC Reg. No. : _____ Qualification : _____ Level : _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Self-Contained Breathing Apparatus 2-Yearly Internal Inspection		
Item	Task Description	Completed	Notes
1	SCBA Sets for the power station shall be subjected to a 2-yearly internal inspection.		
2	Complete and attach inspection tags / labels to cylinders and record all information on data sheets.		
3	Submit inspection reports and test certificates.		
Deficiencies corrected during the 2-Yearly Internal Inspection.			
Deficiencies remaining after the 2-Yearly Internal Inspection.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:	Approved by:	
Name	: _____	: _____	
Date	: _____	: _____	
Signature	: _____	: _____	

ANNEXURE 31 – 3-YEARLY HYDROSTATIC PRESSURE TESTING OF GASEOUS FIRE SUPPRESSION HOSES

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Gaseous Fire Suppression Flexible Hoses 3-Yearly Hydrostatic Pressure Testing	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Connect the hose to the testing device.		
2	Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment.		
3	Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for personal injury during application of pressure and inspection of the hose.		
4	Fill the hose completely with water by venting air from the nozzle.		
5	Mark the hose at each coupling to determine if the hose slips from the coupling during the test.		
6	Close the nozzle.		
7	Slowly raise the pressure in the hose to the test pressure of 1.5 x design pressure (gauge). Maintain the service pressure for at least 5 minutes.		
8	Inspect the entire length of hose and couplings for leakage or signs of degradation.		
9	Note and record any leakage.		
10	Slowly remove pressure from the hose.		
11	Inspect marks on the couplings to determine if the coupling has moved during the test.		
12	Disconnect the hose from the testing device.		
13	Drain and dry the hose.		
14	Record results, including date of testing, and return the hose to storage.		
15	Submit certification.		
Deficiencies corrected during the 3-Yearly			

Hydrostatic Pressure Testing.		
Deficiencies remaining after the 3-Yearly Hydrostatic Pressure Testing.		
Specify any corrective action/follow-up.		
Cross-referenced documentation. (Reports, procedures, etc.)		
Close-out:		
	Work Completed by:	Approved by:
Name	:	:
Date	: _____	: _____
Signature	: _____	: _____
	: _____	: _____

ANNEXURE 32 – 4-YEARLY HYDROSTATIC PRESSURE TESTING OF SELF-CONTAINED BREATHING APPARATUS

Inspection, Servicing & Testing Sheet			
Company Name : _____ Competent Person : _____ SAQCC Reg. No. : _____ Qualification : _____ Level : _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Self-Contained Breathing Apparatus 4-Yearly Hydrostatic Pressure Testing		
Item	Task Description	Completed	Notes
1	SCBA Sets for the power station shall be subjected to a 4-yearly hydrostatic pressure testing.		
2	Complete and attach pressure test tags / labels to cylinders and record all information on data sheets.		
3	Submit pressure test certificates.		
Deficiencies corrected during the 10-Yearly Hydrostatic Pressure Testing.			
Deficiencies remaining after the 10-Yearly Hydrostatic Pressure Testing.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:	Approved by:	
Name	: _____	: _____	
Date	: _____	: _____	
Signature	: _____	: _____	

**ANNEXURE 33 – 5-YEARLY EXTENDED MAINTENANCE, OVERHAUL
 ADHYDROSTATIC PRESSURE TESTING OF EXTINGUISHERS**

Inspection, Servicing & Testing Sheet			
Company Name : _____		Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Fire Extinguishers 5-Yearly Extended Maintenance, Overhaul and Hydrostatic Pressure Testing	
Competent Person : _____			
SAQCC Reg. No. : _____			
Qualification : _____			
Level : _____			
Item	Task Description	Completed	Notes
1	Fire extinguishers for the power station underground area, surface building area, surface building stores area and the visitors centre shall be subjected to a 5-yearly hydrostatic pressure test.		
2	Complete and attach service tags / labels to extinguishers and record all information on data sheets.		
3	Submit pressure test certificates.		
4	Ensure that any extinguisher that is removed from its location for hydrostatic testing, is replaced with another temporary extinguisher that conforms to the following requirements: <ul style="list-style-type: none"> • Extinguishers shall be uniquely identified, labelled and kept on a register which shall be submitted to the employer. • Safety seals and tampering devices/indicators are not broken or missing. • Extinguishing agent quantity is adequate, as determined by weighing or lifting. • Pressure gauge or indicator is within the operable range or position (green). • No obvious physical damage, corrosion, leakage or clogged nozzle exists. • Hose and nozzle are in a good condition. • Temporary extinguishers shall have the necessary certification 		

	and it shall be produced on delivery of temporary extinguishers.		
Deficiencies corrected during the 5-Yearly Extended Maintenance, Overhaul and Hydrostatic Pressure Testing.			
Deficiencies remaining after the 5-Yearly Extended Maintenance, Overhaul and Hydrostatic Pressure Testing.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:		Approved by:
Name	:	_____	_____
Date	:	_____	_____
Signature	:	_____	_____

ANNEXURE 34 – 5-YEARLY EXTENDED MAINTENANCE, OVERHAUL AND HYDROSTATIC PRESSURE TESTING OF HYDRANT HOSES

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Hydrant Hoses 5-Yearly Extended Maintenance, Overhaul and Hydrostatic Pressure Testing	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Connect the hose to the testing device.		
2	Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment.		
3	Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for personal injury during application of pressure and inspection of the hose.		
4	Fill the hose completely with water by venting air from the nozzle.		
5	Mark the hose at each coupling to determine if the hose slips from the coupling during the test.		
6	Close the nozzle.		
7	Slowly raise the pressure in the hose to the test pressure of 16 bar (gauge). Maintain the service pressure for at least 5 minutes.		
8	Inspect the entire length of hose and couplings for leakage or signs of degradation.		
9	Note and record any leakage.		
10	Slowly remove pressure from the hose.		
11	Inspect marks on the couplings to determine if the coupling has moved during the test.		
12	Disconnect the hose from the testing device.		
13	Drain and dry the hose.		
14	Record results, including date of testing, and return the hose to storage.		
15	Submit certification.		
Deficiencies corrected during the 5-Yearly			

Hydrostatic Pressure Testing.		
Deficiencies remaining after the 5-Yearly Hydrostatic Pressure Testing.		
Specify any corrective action/follow-up.		
Cross-referenced documentation. (Reports, procedures, etc.)		
Close-out:		
	Work Completed by:	Approved by:
Name	:	:
Date	: _____	: _____
Signature	: _____	: _____
	: _____	: _____

ANNEXURE 35 – 5-YEARLY HYDROSTATIC PRESSURE TESTING OF HOSE REELS

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Hose Reels 5-Yearly Hydrostatic Pressure Testing	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Connect the hose to the testing device.		
2	Ensure that the hydrostatic test is performed in a safe area away from electrical and mechanical equipment.		
3	Ensure that the hose is properly restrained to prevent whipping in the event of failure. Care must be taken to minimise potential for personal injury during application of pressure and inspection of the hose.		
4	Fill the hose completely with water by venting air from the nozzle.		
5	Close the nozzle.		
6	Slowly raise the pressure in the hose to the test pressure of 16 bar (gauge). Maintain the service pressure for at least 5 minutes.		
7	Inspect the entire length of hose for leakage or signs of degradation.		
8	Note and record any leakage.		
9	Slowly remove pressure from the hose.		
10	Disconnect the hose from the testing device.		
11	Drain and dry the hose.		
12	Record results, including date of testing, and return the hose to storage.		
13	Submit certification.		
Deficiencies corrected during the 5-Yearly Hydrostatic Pressure Testing.			
Deficiencies remaining after the 5-Yearly Hydrostatic Pressure Testing.			

Specify any corrective action/follow-up.		
Cross-referenced documentation. (Reports, procedures, etc.)		
Close-out:		
	Work Completed by:	Approved by:
Name	:	:
Date	: _____	: _____
Signature	: _____	: _____
	: _____	: _____

ANNEXURE 36 – 5-YEARLY OVERHAUL OF DELUGE FLOW CONTROL VALVES

Inspection, Servicing & Testing Sheet			
Company Name : _____		Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Deluge Flow Control Valves 5-Yearly Valve Overhaul	
Competent Person : _____			
SAQCC Reg. No. : _____			
Qualification : _____			
Level : _____			
Item	Task Description	Completed	Notes
1	The deluge flow control valves on the transformer foam/water spray systems and bulk oil storage tank deluge systems shall be subjected to a 5-yearly internal inspection and overhaul.		
2	Disassemble valve and remove components.		
3	Clean and inspect components.		
4	Renew valve diaphragm.		
5	Renew valve seat and seals.		
6	Renew any damaged components.		
7	Renew gaskets.		
8	Re-assemble valve.		
9	Perform functional testing.		
10	Note and record any leakage.		
11	A service label must be fitted on completion of the 5-yearly service.		
12	Submit certification.		
Deficiencies corrected during the 5-Yearly Valve Overhaul.			
Deficiencies remaining after the 5-Yearly Valve Overhaul.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			

Close-out:		
	Work Completed by:	Approved by:
Name	: _____	_____
Date	: _____	_____
Signature	: _____	_____

ANNEXURE 37 – 5-YEARLY OVERHAUL OF DELUGE/FOAM FLOW CONTROL VALVES

Inspection, Servicing & Testing Sheet			
Company Name : _____		Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Deluge/Foam Flow Control Valves 5-Yearly Valve Overhaul	
Competent Person : _____			
SAQCC Reg. No. : _____			
Qualification : _____			
Level : _____			
Item	Task Description	Completed	Notes
1	The deluge/foam flow control valves on the transformer foam/water spray systems shall be subjected to a 5-yearly internal inspection and overhaul.		
2	Disassemble valve and remove components.		
3	Clean and inspect components.		
4	Renew valve diaphragm.		
5	Renew valve seat and seals.		
6	Renew any damaged components.		
7	Renew gaskets.		
8	Re-assemble valve.		
9	Perform functional testing.		
10	Note and record any leakage.		
11	A service label must be fitted on completion of the 5-yearly service.		
12	Submit certification.		
Deficiencies corrected during the 5-Yearly Valve Overhaul.			
Deficiencies remaining after the 5-Yearly Valve Overhaul.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			

Close-out:		
	Work Completed by:	Approved by:
Name	:	
Date	:	
Signature	:	
	:	

ANNEXURE 38 – 5-YEARLY OVERHAUL OF SPRINKLER FLOW CONTROL VALVES

Inspection, Servicing & Testing Sheet			
Company Name : _____		Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Sprinkler Flow Control Valves 5-Yearly Valve Overhaul	
Competent Person : _____			
SAQCC Reg. No. : _____			
Qualification : _____			
Level : _____			
Item	Task Description	Completed	Notes
1	The cable spreading room sprinkler flow control valve shall be subjected to a 5-yearly internal inspection and overhaul.		
2	Disassemble valve and remove components.		
3	Clean and inspect components.		
4	Renew valve diaphragm.		
5	Renew valve seat and seals.		
6	Renew any damaged components.		
7	Renew gaskets.		
8	Re-assemble valve.		
9	Perform functional testing.		
10	Note and record any leakage.		
11	A service label must be fitted on completion of the 5-yearly service.		
12	Submit certification.		
Deficiencies corrected during the 5-Yearly Valve Overhaul.			
Deficiencies remaining after the 5-Yearly Valve Overhaul.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			

Close-out:		
	Work Completed by:	Approved by:
Name	:	
Date	:	
Signature	:	
	:	

ANNEXURE 39 – 5-YEARLY OVERHAUL OF FIRE SHUT-OFF VALVES

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Fire Shut-off Valves 5-Yearly Valve Overhaul	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	The hydraulic and lubricating fire shut-offvalves shall be subjected to a 5-yearly internal inspection and overhaul.		
2	Disassemble valve and remove components.		
3	Clean and inspect components.		
4	Renew valve diaphragm.		
5	Renew valve seat and seals.		
6	Renew any damaged components.		
7	Renew gaskets.		
8	Re-assemble valve.		
9	Perform functional testing.		
10	Note and record any leakage.		
11	A service label must be fitted on completion of the 5-yearly service.		
12	Submit certification.		
Deficiencies corrected during the 5-Yearly Valve Overhaul.			
Deficiencies remaining after the 5-Yearly Valve Overhaul.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			

Close-out:		
	Work Completed by:	Approved by:
Name	:	
Date	:	
Signature	:	
	:	

ANNEXURE 40 – 5-YEARLY OVERHAUL & PERFORMANCE TESTING OF STORES FIRE PUMP

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Stores Fire Pump 5-Yearly Overhaul & Performance Test	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Conduct overhaul and performance test of store building fire pump and driver in accordance with the Employer's approved instructions.		
2	Provide an overhaul service report with pump and motor performance tests inclusive of pump curve.		
Deficiencies corrected during the Yearly Performance Test.			
Deficiencies remaining after the 5-Yearly Overhaul and Performance Test.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:		Approved by:
Name	: _____		_____
Date	: _____		_____
Signature	: _____		_____

ANNEXURE 41 – 5-YEARLY PERFORM NON-DESTRUCTIVE TESTING (X-RAY) ON FIRE PIPING AND WELDS

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Ingula Power Station- Fire Protection Systems Inspection, Servicing & Testing Main Fire Water Supply Piping 5-Yearly Perform Non-destructive Testing (X-Ray) on Fire Piping and Welds	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	The identified piping on the Main Fire Water Supply Line shall be subjected to a 5-yearly X-Ray.		
2	Submit detailed reports with digital images on the condition of the pipes and welds.		
Deficiencies corrected during the 5-Yearly X-Ray.			
Deficiencies remaining after the 5-Yearly X-Ray.			
Specify any corrective action/follow-up.			
Cross-referenced documentation. (Reports, procedures, etc.)			
Close-out:			
	Work Completed by:	Approved by:	
Name	: _____	_____	
Date	: _____	_____	
Signature	: _____	_____	

ANNEXURE 42 – HYDROSTATIC PRESSURE TESTING OF GASEOUS FIRE SUPPRESSION CYLINDERS

Inspection, Servicing & Testing Sheet			
Company Name	: _____	Drakensberg Power Station- Fire Protection Systems Inspection, Servicing & Testing Envirogen Gaseous Suppression Cylinders Inspection, Servicing and Hydrostatic Pressure Testing	
Competent Person	: _____		
SAQCC Reg. No.	: _____		
Qualification	: _____		
Level	: _____		
Item	Task Description	Completed	Notes
1	Envirogen cylinders for the power station shall be subjected to inspection, servicing and hydrostatic pressure testing.		
2	Complete and attach service tags / labels to cylinders and record all information on data sheets.		
3	Submit inspection and pressure test certificates.		
4	Ensure that any cylinder that is removed from its location for inspection and hydrostatic testing, is replaced with another temporary cylinder that conforms to the following requirements: <ul style="list-style-type: none"> • Cylinders shall be uniquely identified, labelled and kept on a register which shall be submitted to the employer. • Safety seals and tampering devices/indicators are not broken or missing. • Agent quantity is adequate, as determined by weighing or lifting. • Pressure gauge or indicator is within the operable range or position (green). • No obvious physical damage, corrosion, leakage or clogged nozzle exists. • Temporary cylinders shall have the necessary certification and it shall be produced on delivery of temporary cylinders. 		

Deficiencies corrected during the Inspection and Hydrostatic Pressure Testing.		
Deficiencies remaining after the Inspection and Hydrostatic Pressure Testing.		
Specify any corrective action/follow-up.		
Cross-referenced documentation. (Reports, procedures, etc.)		
Close-out:		
	Work Completed by:	Approved by:
Name	:	:
Date	: _____	: _____
	:	:
Signature	: _____	: _____
	:	:
	: _____	: _____