



# NIGERIAN ELECTRICITY MANAGEMENT SERVICES AGENCY

## NEMSA



No. 4, Dar es Salaam Crescent, Off Aminu Kano Crescent, Wuse II, Abuja, FCT.

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### **INSPECTION REPORT OF 915MW TRANSCORP POWER STATION AT UGHELLI, DELTA STATE**



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### **INSPECTION REPORT OF 915MW TRANSCORP POWER STATION AT UGHELLI, DELTA STATE**

The Inspection and Evaluation of the 915MW Transcorp Power Station was carried out on Tuesday 14<sup>th</sup> March 2017 with the following in attendance:

**a. Nigerian Electricity Management Service Agency (NEMSA) Officials:**

- |      |                       |  |
|------|-----------------------|--|
| i.   | Engr. Peter O. Ewesor | Managing Director/CEO & CEIF, Abuja Headquarters |
| ii.  | Engr Tukur Gidado     | Executive Director, Technical Services           |
| iii. | Engr Tukur T. Aliyu   | Head Technical Standards & Inspectorate Services |
| iv.  | Engr. William Metieh  | S.A. Technical , Abuja Headquarters              |
| v.   | Engr Alaba Quadry     | Area Inspecting Engineer (Benin Zonal Office)    |

**b. Transcorp Power Ltd Officials:**

- |      |                    |                            |
|------|--------------------|----------------------------|
| i.   | Engr Francis Agoha | Chief Operating Officer    |
| ii.  | Engr Clifford Agu  | Head of Operations         |
| iii. | Engr N.O. Anozie   | Team Lead Plant Efficiency |

**c. TCN Officials:**

- |    |           |                 |
|----|-----------|-----------------|
| i. | A. Owonla | PM Transmission |
|----|-----------|-----------------|

- ii. R. O. Maduka SM Electrical
- iii. W.A.Asonmwonriri SM PCM

**Purpose of NEMSA’s Visit:** The Inspection and Evaluation of the Transcorp Power Station is to ascertain its compliance with technical standards/Regulations, and also safety requirements in accordance with NEMSA Act and regulations.

**Plant Detail:** Client - **Transcorp Power Limited, Ughelli, Delta State**




**Plant Scope:** The power plant which has “grid black start” capability consists of the following:

| <b>STATION</b>   | <b>TURBINE/GENERATOR</b>              | <b>STATION TRANSFORMER</b>                                 |
|------------------|---------------------------------------|--|
| <b>DELTA I</b>   | Scrapped                              |  |
| <b>DELTA II</b>  | 6 x 25MW Hitachi GTG                  | TF3 – 1 X 90MVA, 11.5/132KV<br>TF4 – 1 X 81MVA, 11.5/132KV |
| <b>DELTA III</b> | 6 x 25MW Hitachi GTG                  | TF5 – 1 X 81MVA, 11.5/132KV<br>TF6 – 1 X 81MVA, 11.5/132KV |
| <b>DELTA IV</b>  | 5 x 100MW & 1 x 115MW GE Frame 9E GTG | 1 X 178MVA, 11.5/330KV<br>5 X 120MVA, 11.5/330KV           |



**Power Station Objective:** The power plant generates power into the National Grid at 132KV and 330KV. The particulars of the turbines/generators, transformers and other power equipment are as per the attached appendices. Also, the Schematic Single Line Diagram of the Power Station and Transmission Stations are attached as Appendices II and III.



**Our observations and recommendations are as follows:**

| S/No | POWER PLANT AREA | OBSERVATIONS   | PICTURES   | RECOMMENDATIONS   |
|------|------------------|--|--|---|
| 1.   | POWER PLANT      | <p>1. The Transcorp Ltd Power Station is located at Kilometre 17 along the Effurun – Port Harcourt East-West Expressway at Ughelli, Delta State. The Station is well fenced with adequate security/ access control in place.</p> <p>2. Only authorized persons are allowed into the premises and all those working/visiting in the power station participate in mandatory safety pep talks/procedures prior to being allowed into the operational areas.</p> <p>3. Switch Yard has perimeter fencing with wire mesh adequately earthed at different points.</p> <p>4. Drainage system was provided to discharge water outside the switchyard.</p> <p>5. Fire hydrant network traverses the entire power plant.</p> <p>6. Adequate lightning protection seen; both spikes and sky wire lattice.</p> | <div data-bbox="907 240 1249 504"> </div> <div data-bbox="1346 240 1675 515"> </div> <p data-bbox="1003 555 1675 587" style="text-align: center;"><b>Power Station /Perimeter of Transmission Station</b></p> <div data-bbox="1003 603 1541 927"> </div> <p data-bbox="1070 951 1473 983" style="text-align: center;"><b>Good network of fire hydrants</b></p> <div data-bbox="1003 1002 1563 1331"> </div> <p data-bbox="1104 1345 1440 1377" style="text-align: center;"><b>Network of fire hydrants</b></p> | <p>1. The tidiness of the Power Station, the Safety drills and general adherence to safety as demonstrated by the Operations and HSE staff is commendable and should be maintained.</p> |



|    |  |  |  |   |
|----|--|--|--|---|
|    |  | <p><b>7. Bleed excess natural gas from Utorogu and Ughelli East Gas Plants are flared for safety.</b></p>  |   |   |
| 2. | <p><b>Delta II &amp; III Turbines Building Areas</b></p> | <p><b>1. Cables not properly laid on cable trays were seen in the Delta II &amp; III turbine building areas; some of the cables were seen just bunched together on the building stanchions/steel structures.</b></p> |  <p><b>Cables tied untidily on turbine building steel structure</b></p> | <p><b>1. Use proper cable trays or cable ducts as discussed with your team of engineers.</b></p>                |
|    |  | <p><b>2. Some cables were seen with exposed ends next to a socket outlet indicative that these might have been inserted into the socket outlets without appropriate / matching plugs.</b></p>                        |  <p><b>Exposed cable by steel structure in turbine building</b></p>   | <p><b>2. All exposed cables and/or joints should be taped, or appropriate plugs used to terminate them.</b></p> |







|  |  |   |  |   |
|--|--|---|--|---|
|  |  | <p>3. Some cables were seen running on the bare turbine room floor. This is unsafe.</p>   |  <p>Live cables lying loosely on the floor in Delta III turbine areas</p> | <p>3. Cables lying loosely on the floor should be properly run on cable trays, ducts or pipes to avoid accidental damage and possible tripping of personnel by the cables.</p>  |
|  |  | <p>4(i) Good earthing of the turbine and alternator base frames using appropriately rated earth conductors were seen in place.<br/>4(ii) However, some earthing points were seen covered/coated with paint thereby reducing the contact connections and this has negative effect on earthing effectiveness.</p> |  <p>The turbine frames and control panels were well earthed</p>           | <p>4 (i) The earthing on all the turbines, alternators, transformers, panels, etc must be checked at least twice a year to ensure that their earthing resistance values are below 2 Ohms.<br/>4 (ii) The earthing points should be checked for proper contact/ingress. The ones with ingress should be disconnected, cleaned, greased &amp; reconnected for proper contact.</p> |

|  |  |   |   |   |
|--|--|---|---|---|
|  |  | <p>5. Some sections of the Delta II &amp; III turbine areas were observed very hot as some of the extractor fans were either not in position or were not working.</p>   |  <p style="text-align: center;"><b>Missing Roof extractor fans</b></p>                  | <p>5. All missing or faulty roof extractor fans should be replaced/made operational.</p>  |
|  |  | <p>6. Appropriate lightning protection Faraday spikes were seen on the exhaust stacks of Delta IV turbines and around the power station.</p> <p>7. Other lightning arrestors seen around the power station providing adequate protection against lightning strikes.</p> |  <p style="text-align: center;"><b>Typical exhaust stack of the Frame 9E GTGs</b></p> | <p>6. Earthing of lightning arrestors should be checked regularly to ensure earth continuity and earthing resistance of less than 2 Ohms.</p> |





|   |  |   |   |  |
|---|--|---|---|--|
|   |  | <p>8 (i). Some main/control switches were seen without covers or inadequately covered.</p> <p>8(ii). Control switches were not adequately labeled / identified.</p>                                       |  <p>Uncovered/exposed switches in Delta III turbine area</p>                      | <p>8(i). All exposed electrical switches must be covered.</p> <p>8(ii). Control switches should be appropriately labeled for ease of identification by operatives/technical personnel.</p> |
| . |  | <p>9. Rain water seen collecting on the channel iron used to brace the turbine building doors. This could lead to rusting of the channel iron, and can also be a receptacle for festering mosquitoes.</p> |  <p>Water collection on door channel iron could be a habitat for mosquitoes</p> | <p>9. At least one (1) hole should be drilled on the channel iron to drain off water and prevent future gathering of water on it.</p>  |

|           |                               |   |   |  |
|-----------|-------------------------------|---|---|--|
|           |                               | <p>10. Most of the main access doors to the turbines were open and without barriers. This could give access to unauthorized persons to enter the turbine areas and cause expensive damage to the rotor and other turbine parts.</p>   |  <p>Wide open doors give free access to turbine areas</p> | <p>10. Appropriate barriers to be provided to prevent accidental entry to turbine areas.</p> <p>11. Gates made with wire mesh can be provided if the doors must be open especially in areas where roof extractor fans are missing and the turbine area is hot.</p>                                 |
| <p>3.</p> | <p><b>EARTHING SYSTEM</b></p> | <p>1. An earth continuity conductor was seen not properly terminated at Delta IV by the Station Transformer II.</p> <p>2. Painting was seen on some of the earthing points.</p> <p>3. The earth pit points were properly covered.</p> |  <p>Dangling earth continuity conductor.</p>             | <p>1. The hanging earth conductors should be clamped properly to the gantries leg to ensure earth continuity.</p> <p>2. All paint deposits on earthing points should be scraped of and the area of contacts properly cleaned, retightened for better contact and greased to prevent corrosion.</p> |

|    |                      |  |   |  |
|----|----------------------|--|---|--|
| 4. | STATION TRANSFORMERS | <p>1. It was observed that the Delta IV Turbine No. 1 station transformer area was not fully protected with a fence. This was considered to be work-in-progress and should have been provided with temporary barrier and Danger Signs.</p> <p>2. The gantries carrying the fire hydrant pipes around the station transformers were seen not earthed.</p> |  <p>Station transformer area of 115MW GTG not guarded.</p> | <p>1. The protective wire mesh fence should be restored and appropriate Danger Signs installed.</p> <p>2. Mesh protection around the station transformer should be earthed appropriately.</p> <p>3. The gantries/columns carrying the fire hydrant pipes around the station transformers should be adequately earthed.</p> |
| 5. | BATTERY ROOM         | <p>1. No Eye-Wash facility seen installed nearby</p> <p>2. Battery area was seen to be well ventilated and protected from access by unauthorized persons.</p>  |  <p>Battery compartment</p>                                | <p>1. Eye wash bay should be established close to the battery area..</p> <p>2. Lighting should be improved upon generally and all lighting points should be functional.</p> <p>3. Metallic gate and the wire mesh should be adequately earthed.</p>  |

|           |                             |  |   |  |
|-----------|-----------------------------|--|---|--|
| <p>6.</p> | <p><b>CONTROL ROOMS</b></p> | <ol style="list-style-type: none"> <li>1. Experienced, well-trained &amp; fully kitted operatives and technical personnel were seen on duty, and demonstrated familiarity with the operations of the power station.</li> <li>2. Some inner lighting points were not working</li> <li>3. Both mimic and HMI units in use in the control room.</li> <li>4. Some metal doors seen not earthed.</li> <li>5. Insulation rubber mat was not provided for the control panels.</li> <li>6. Electric shock treatment chart was not provided in the control room.</li> <li>7. Cables being newly run at the rear of the panels not marked as “work-in-progress”</li> </ol> | <div data-bbox="1039 312 1473 751" data-label="Image"> </div> <p data-bbox="1014 791 1487 820" style="text-align: center;">Front view of Delta IV control Panel</p> <div data-bbox="1048 852 1476 1283" data-label="Image"> </div> <p data-bbox="913 1302 1637 1370" style="text-align: center;">Rear view of the control panel with untidy/unlabelled cables</p> | <ol style="list-style-type: none"> <li>1. All the security lights should be fixed.</li> <li>2. The inner lighting points should be made functional.</li> <li>3. All the metallic doors should be earthed</li> <li>4. Insulation rubber mat should be provided and laid around the control panels.</li> <li>5. Electric shock treatment chart should be provided.</li> <li>6. Cable trench metallic covers and metallic doors should be earthed.</li> </ol> |
|-----------|-----------------------------|--|---|--|



|                  |                                       |  |   |   |
|------------------|---------------------------------------|--|---|---|
|                  |                                       | <p><b>8. Extension socket outlets seen on control room floor.</b></p>  |  <p><b>Heavily-loaded Extension socket could be a source of Fire</b></p> |   |
| <p><b>7.</b></p> | <p><b>SAFETY EQUIPMENT/ SIGNS</b></p> | <ol style="list-style-type: none"> <li><b>1. Danger / Warning signs were seen available in the entire power station.</b></li> <li><b>2. Safety requirements for specific areas were seen displayed in areas such as entrance to turbine areas</b></li> <li><b>3. Fire extinguishers were available in the turbine areas and control room but not in the switch yard.</b></li> <li><b>4. Artificial respiration procedures chart not seen in the control room.</b></li> </ol> |   | <ol style="list-style-type: none"> <li><b>1. Danger / Warning signs should be provided at strategic locations</b></li> <li><b>2. More fire extinguishers should be provided in the turbine areas.</b></li> <li><b>3. All unused constructional materials, equipment and tools should be moved out of the turbine areas.</b></li> <li><b>4. All constructional hanging cable strands, ropes, bolts &amp; nuts, etc, should be removed</b></li> <li><b>5. The turbine areas should be kept clean &amp; tidy always.</b></li> <li><b>6. Emergency / Artificial Respiration Charts should be provided.</b></li> </ol> |

**APPENDIX I**  
**DETAILS OF TRANSCORP LIMITED TURBINE-ALTERNATORS**

**DELTA II: TURBINE & GENERATOR DETAILS**

**GT 3 MANUFACTURER: HITACHI**

|                      |                           |                            |           |
|----------------------|---------------------------|----------------------------|-----------|
| TYPE                 | SIMPLE CYCLE SINGLE SHAFT |                            |           |
| RATING               | 23,788 KW                 |                            |           |
| COMPRESSOR           | 17 Stages                 | TURBINE                    | 3 Stages  |
| TURBINE SPEED        | 7,280 rpm                 |                            |           |
| AIR INLET TEMP       | 15°C                      | TURBINE EXHAUST TEMPERAURE | 520°C     |
| AIR INLET PRESSURE   | 100.16KPa                 | TURBINE EXHAUST PRESSURE   | 101.97KPa |
| DATE                 | 2001                      | GT No.                     | 484       |
| INSTRUCTION BOOK No. | TS. 11B2060 – 1E          | MFG No.                    | K951951   |

**GENERATOR**

**MANUFACTURER: MEIDEN**

|                           |                       |               |                          |
|---------------------------|-----------------------|---------------|--------------------------|
| Protection                | IPN 55                | Cooling       | IC3A1                    |
| Type                      | EP – AFT              | Rating        | Cont.                    |
| Output                    | 29725KVA              | Phase         | 3                        |
| Rated Speed               | 3000min <sup>-1</sup> | Poles         | 2                        |
| Frequency                 | 50Hz                  | Power Factor  | 80%                      |
| Voltage                   | 11500V                | Current       | 1492A                    |
| Field Voltage             | 270V                  | Field Current | 417A                     |
| Insulation Class Armature | F                     | Field F       | Cooling Temperature 15°C |
| Standard                  | IEC – 34 (1996)       |               |                          |
| Serial No. 1N7477R2       | Date 2001             |               |                          |



**GT 4 TURBINE MANUFACTURER: HITACHI**

|                      |                           |                            |           |
|----------------------|---------------------------|----------------------------|-----------|
| TYPE                 | SIMPLE CYCLE SINGLE SHAFT |                            |           |
| RATING               | 23,788 KW                 |                            |           |
| COMPRESSOR           | 17 Stages                 | TURBINE                    | 3 Stages  |
| TURBINE SPEED        | 7,280 rpm                 |                            |           |
| AIR INLET TEMP       | 15°C                      | TURBINE EXHAUST TEMPERAURE | 520°C     |
| AIR INLET PRESSURE   | 100.16KPa                 | TURBINE EXHAUST PRESSURE   | 101.97KPa |
| DATE                 | 2001                      | GT No.                     | 485       |
| INSTRUCTION BOOK No. | TS. 11B2060 – 1E          | MFG No.                    | K951961   |

**GENERATOR**  
**MANUFACTURER: MEIDEN**

|                           |                       |               |                          |
|---------------------------|-----------------------|---------------|--------------------------|
| Protection                | IPN 55                | Cooling       | IC3A1                    |
| Type                      | EP – AFT              | Rating        | Cont.                    |
| Output                    | 29725KVA              | Phase         | 3                        |
| Rated Speed               | 3000min <sup>-1</sup> | Poles         | 2                        |
| Frequency                 | 50Hz                  | Power Factor  | 80%                      |
| Voltage                   | 11500V                | Current       | 1492A                    |
| Field Voltage             | 270V                  | Field Current | 417A                     |
| Insulation Class Armature | F                     | Field F       | Cooling Temperature 15°C |
| Standard                  | IEC – 34 (1996)       |               |                          |
| Serial No. 1N7477R2       | Date 2001             |               |                          |

## **GT 5 TURBINE**

### **MANUFACTURER: HITACHI**

|                      |                           |                            |           |
|----------------------|---------------------------|----------------------------|-----------|
| TYPE                 | SIMPLE CYCLE SINGLE SHAFT |                            |           |
| RATING               | 23,788 KW                 |                            |           |
| COMPRESSOR           | 17 Stages                 | TURBINE                    | 3 Stages  |
| TURBINE SPEED        | 7,280 rpm                 |                            |           |
| AIR INLET TEMP       | 15°C                      | TURBINE EXHAUST TEMPERAURE | 520°C     |
| AIR INLET PRESSURE   | 100.16KPa                 | TURBINE EXHAUST PRESSURE   | 101.97KPa |
| DATE                 | 2001                      | GT No.                     | 486       |
| INSTRUCTION BOOK No. | TS. 11B2060 – 1E          | MFG No.                    | K951971   |

## **GENERATOR**

### **MANUFACTURER: MEIDEN**

|                           |                       |               |                          |
|---------------------------|-----------------------|---------------|--------------------------|
| Protection                | IPN 55                | Cooling       | IC3A1                    |
| Type                      | EP – AFT              | Rating        | Cont.                    |
| Output                    | 29725KVA              | Phase         | 3                        |
| Rated Speed               | 3000min <sup>-1</sup> | Poles         | 2                        |
| Frequency                 | 50Hz                  | Power Factor  | 80%                      |
| Voltage                   | 11500V                | Current       | 1492A                    |
| Field Voltage             | 270V                  | Field Current | 417A                     |
| Insulation Class Armature | F                     | Field F       | Cooling Temperature 15°C |
| Standard                  | IEC – 34 (1996)       |               |                          |
| Serial No. 1N7380R1       | Date 2001             |               |                          |

**GT 6 TURBINE****MANUFACTURER: HITACHI**

|                      |                           |                            |           |
|----------------------|---------------------------|----------------------------|-----------|
| TYPE                 | SIMPLE CYCLE SINGLE SHAFT |                            |           |
| RATING               | 23,788 KW                 |                            |           |
| COMPRESSOR           | 17 Stages                 | TURBINE                    | 3 Stages  |
| TURBINE SPEED        | 7,280 rpm                 |                            |           |
| AIR INLET TEMP       | 15°C                      | TURBINE EXHAUST TEMPERAURE | 520°C     |
| AIR INLET PRESSURE   | 100.16KPa                 | TURBINE EXHAUST PRESSURE   | 101.97KPa |
| DATE                 | 2001                      | GT No.                     | 483       |
| INSTRUCTION BOOK No. | TS. 11B2060 – 1E          | MFG No.                    | K951941   |

**GENERATOR****MANUFACTURER: MEIDEN**

|                           |                       |               |                          |
|---------------------------|-----------------------|---------------|--------------------------|
| Protection                | IPN 55                | Cooling       | IC3A1                    |
| Type                      | EP – AFT              | Rating        | Cont.                    |
| Output                    | 29725KVA              | Phase         | 3                        |
| Rated Speed               | 3000min <sup>-1</sup> | Poles         | 2                        |
| Frequency                 | 50Hz                  | Power Factor  | 80%                      |
| Voltage                   | 11500V                | Current       | 1492A                    |
| Field Voltage             | 270V                  | Field Current | 417A                     |
| Insulation Class Armature | F                     | Field F       | Cooling Temperature 15°C |
| Standard                  | IEC – 34 (1996)       |               |                          |
| Serial No. 1N7380R1       | Date 2001             |               |                          |

**GT 7 TURBINE****MANUFACTURER: HITACHI**

|                      |                           |                            |           |
|----------------------|---------------------------|----------------------------|-----------|
| TYPE                 | SIMPLE CYCLE SINGLE SHAFT |                            |           |
| RATING               | 23,788 KW                 |                            |           |
| COMPRESSOR           | 17 Stages                 | TURBINE                    | 3 Stages  |
| TURBINE SPEED        | 7,280 rpm                 |                            |           |
| AIR INLET TEMP       | 15°C                      | TURBINE EXHAUST TEMPERAURE | 520°C     |
| AIR INLET PRESSURE   | 100.16KPa                 | TURBINE EXHAUST PRESSURE   | 101.97KPa |
| DATE                 | 2000                      | GT No.                     | 455       |
| INSTRUCTION BOOK No. | TS. 11B2060 – 1E          | MFG No.                    | K951201   |

**GENERATOR****MANUFACTURER: SIEMENS**

|                        |                   |        |
|------------------------|-------------------|--------|
| GENERATOR              | 12006182          | 2000   |
| TLRI 80/20             | 50s <sup>-1</sup> | CW     |
| 3 ~                    | Y                 | U1V1W1 |
| 11500V±5%              | 1492A             | S1     |
| 29730KVA               | Cos φ = 0.80      |        |
| Self Excitation        | 87V               | 823A   |
| Class of Insul. Mat. F | 1M 7215           | IP54   |
| Air cooling            | Cold air 15°C     |        |
| Weight Stator 36.4Mg   |                   |        |
| Weight Rotor 14.4Mg    |                   |        |

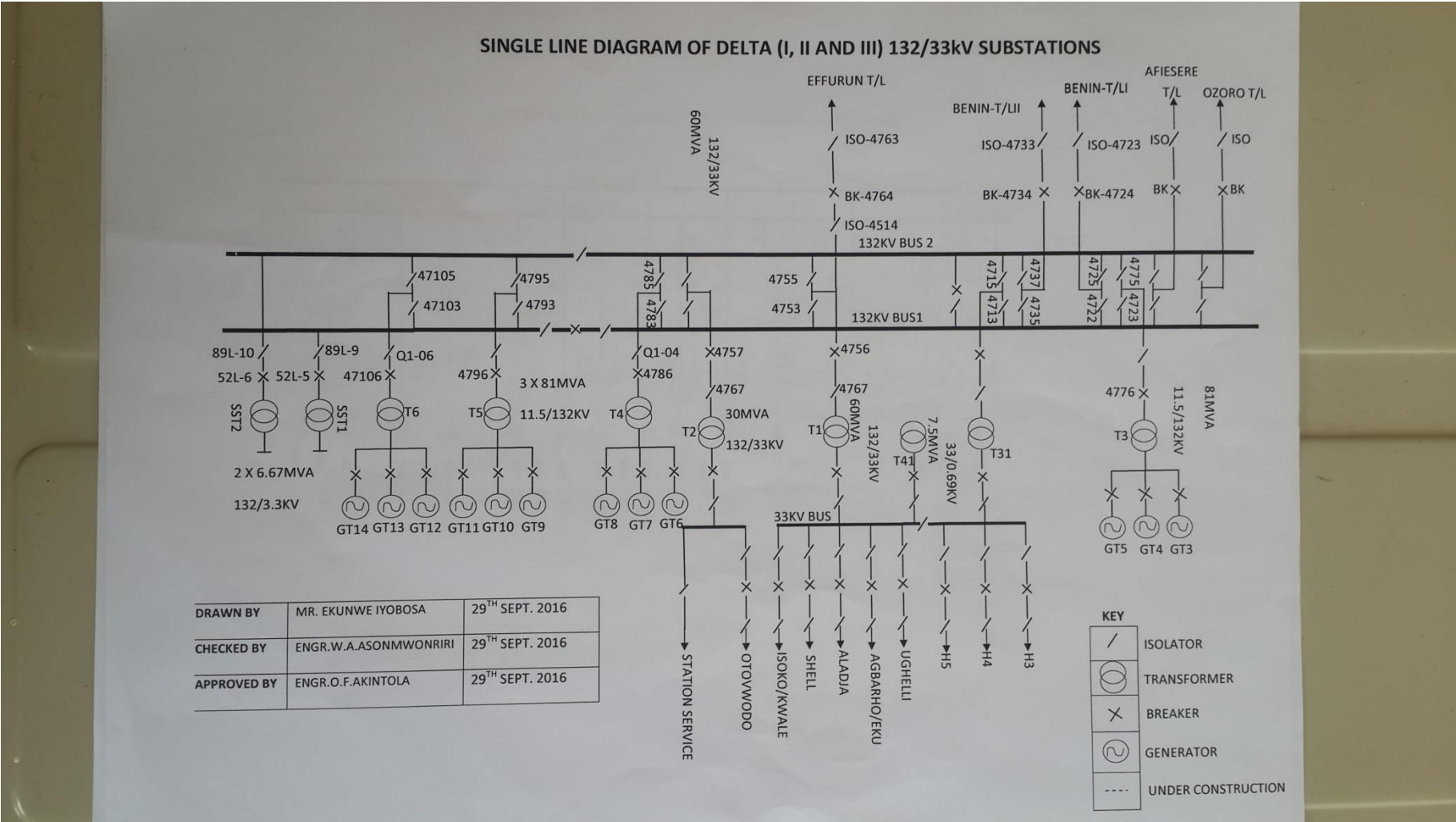
**GT 8 TURBINE****MANUFACTURER: HITACHI**

|                      |                           |                            |           |
|----------------------|---------------------------|----------------------------|-----------|
| TYPE                 | SIMPLE CYCLE SINGLE SHAFT |                            |           |
| RATING               | 23,788 KW                 |                            |           |
| COMPRESSOR           | 17 Stages                 | TURBINE                    | 3 Stages  |
| TURBINE SPEED        | 7,280 rpm                 |                            |           |
| AIR INLET TEMP       | 15°C                      | TURBINE EXHAUST TEMPERAURE | 520°C     |
| AIR INLET PRESSURE   | 100.16KPa                 | TURBINE EXHAUST PRESSURE   | 101.97KPa |
| DATE                 | 2000                      | GT No.                     | 454       |
| INSTRUCTION BOOK No. | TS. 11B2060 – 1E          | MFG No.                    | K951181   |

**GENERATOR****MANUFACTURER: SIEMENS**

|                        |                   |        |
|------------------------|-------------------|--------|
| GENERATOR              | 12006181          | 2000   |
| TLRI 80/20             | 50s <sup>-1</sup> | CW     |
| 3 ~                    | Y                 | U1V1W1 |
| 11500V±5%              | 1492A             | S1     |
| 29730KVA               | Cos φ = 0.80      |        |
| Self Excitation        | 87V               | 823A   |
| Class of Insul. Mat. F | 1M 7215           | IP54   |
| Air cooling            | Cold air 15°C     |        |
| Weight Stator 36.4Mg   |                   |        |
| Weight Rotor 14.4Mg    |                   |        |

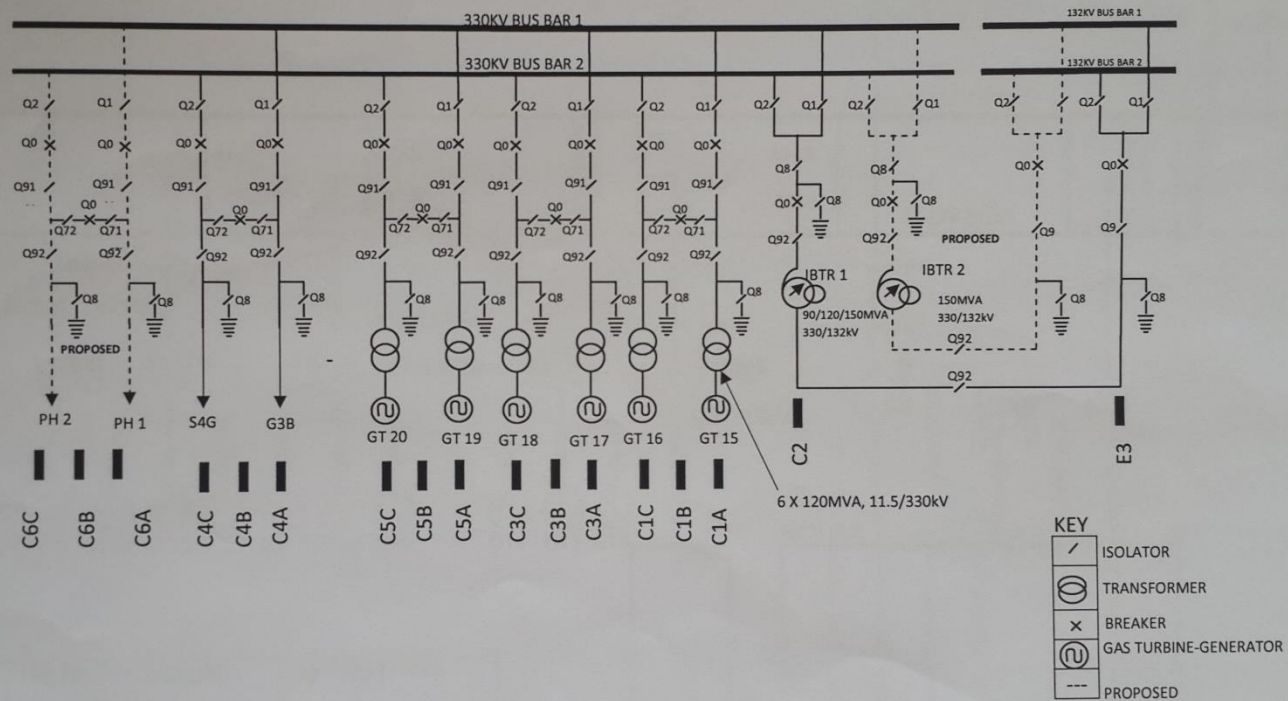
# APPENDIX II





# APPENDIX III

DELTA IV TRANSMISSION SUBSTATION SINGLE LINE DIAGRAM.



**KEY**

|  |                       |
|--|-----------------------|
|  | ISOLATOR              |
|  | TRANSFORMER           |
|  | BREAKER               |
|  | GAS TURBINE-GENERATOR |
|  | PROPOSED              |

|                    |                        |                             |
|--------------------|------------------------|-----------------------------|
| <b>DRAWN BY</b>    | MR. FORTUNATE OBI      | 29 <sup>TH</sup> SEPT. 2016 |
| <b>CHECKED BY</b>  | ENGR. W.A ASONMWONRIRI | 29 <sup>TH</sup> SEPT. 2016 |
| <b>APPROVED BY</b> | ENGR. O.F AKINTOLA     | 29 <sup>TH</sup> SEPT. 2016 |

## APPENDIX IV

### GENERAL OBSERVATIONS

1. Access doors to turbine areas not closed presumably because of absence of roof extractor fans in some areas of Delta II & III.
2. Loose cables, broken earth continuity conductor, exposed terminals all constitute unsafe conditions.

### GENERAL RECOMMENDATIONS

1. More fire extinguishers should be provided in critical turbine building areas.
2. CCTV cameras should be installed in the turbine buildings and switchyard to provide adequate remote surveillance of the entire power station and transmission station.

### CONCLUSION

Please note that the inspection and certification of the power station has been carried out in line with NEMSA Act 2015. You are to pay the necessary payment of inspection fees\*\* of <<**Two Million, One Hundred and Thirty-Six Thousand Two Hundred and Fifty Naira (N2,136,250.00)**>> **ONLY** into TSA/CBN/ NIGERIAN ELECTRICITY MANAGEMENT SERVICES AGENCY ACCOUNT CBN/3000047706008.

### Signed by:

CLIENT: TRANSCORP POWER LIMITED, UGHELLI:.....DATE.....

TRANSMISSION COMPANY OF NIGERIA [TCN]:.....DATE:.....

INSPECTING /TESTING AUTHORITY: NIGERIAN ELECTRICITY MANAGEMENT SERVICES AGENCY.....DATE.....

**NOTES: (i) THIS IS NOT A CERTIFICATE; (ii) \*\*Inspection Fees based on 1143.75MVA Capacity of the Transcorp Power Station as at date of Inspection.**



## **CONTIGUOUS TO TRANSCORP POWER DELTA IV IS A 330KV TRANSMISSION STATION UGHELLI, DELTA STATE**

