

C.E. (System Control Centre),

REPORT ON SYSTEM DISTURBANCE / PLANT FAILURE

Power Station: **Kotmale Power Station** Date: 04/12/2015 Time: 09:22 hrs

Failure at a Glance: At 09:22 hrs. Unit 03 at Kotmale Power Station tripped with the indication Substation Protection operated.

Pre-fault condition:

Generators:

Readings at 09:00 hrs

| Unit No. | MW | MVar | Voltage kV | AVR AVR/FCR | Governor | Remarks |
|----------|----|------|------------|-------------|----------|-------------|
| 01 | 38 | 25 | 14.0 | AVR | Ep1/Auto | Frq Control |
| 02 | 62 | 30 | 14.4 | AVR | Ep2/Auto | - |
| 03 | 40 | 30 | 14.4 | AVR | Ep2/Auto | - |

Transmission Lines:

Readings at 09:00 hrs

| Transmission Line | MVar | MW | A | kV |
|-------------------|------|------|-----|-----|
| Vic 01 | 37 | 156 | 425 | 228 |
| Vic 02 | 36 | 154 | 422 | 227 |
| Anu 01 | 31 | -29 | 111 | 226 |
| Anu 02 | - | - | - | - |
| UK 01 | 10 | 40 | 99 | 227 |
| UK 02 | 09 | 40 | 102 | 228 |
| Biy 01 | -98 | -250 | 707 | 226 |
| Biy 02 | -103 | -248 | 708 | 226 |

(b). Nature of failure:

| Equipment | Auto/ Man trip | Time of tripping | Indications/Remarks |
|-----------|----------------|------------------|---|
| Unit 03 | Auto | 09:22 | <p>At Power House</p> <p>Red Indications:</p> <ul style="list-style-type: none">• Inlet Valve Closing Trip• Emergency Shutdown• Substation protection operated• 881 (reg 670)<ul style="list-style-type: none">◆ trip <p>At Control Room</p> <p>White Indications</p> <ul style="list-style-type: none">• Gen.Tr(U3) Protection Operated• RAC1=U3 Ge.3 Cable Ex.Tr F87 T<ul style="list-style-type: none">○ 1.Relay Trip○ Relay Pickup |

| | | | |
|--|--|--|---|
| | | | <ul style="list-style-type: none"> ○ Diff.Trip ○ 2nd Harmonic Block ○ 5th harmonic Block ● Ex.Tr F87 N <ul style="list-style-type: none"> ○ LV REF ○ Relay Pickup ○ Relay Trip ● D31 RP 220/13.8 kV Ge.Tr.No 03 F87T <ul style="list-style-type: none"> ○ Diff.Trip ○ Relay Pickup ○ Relay Trip ○ 2nd Harmonic Block ● KTR6R-ET Buchholz relay operated ● R67 Siemens <ul style="list-style-type: none"> ○ R ph pickup ○ Y ph pickup ○ B ph pickup |
|--|--|--|---|

3. Restoration

| Equipment | Restored time |
|-----------|------------------------|
| Unit 03 | 22:25 hrs (05/12/2015) |

4. Brief description of incident by officer in charge [OEE] at that time:

At 09:22 hrs, Unit 03 at Kotmale Power Station tripped with indications Substation Protection operated. The U-03 LV-Restricted Earth Fault protection was operated. An Electrocuted animal was located on top of the Earthing Transformer. The transformer bushings were exploded and all connections were disintegrated in 13.8 kV side. Fire was extinguished by using powder spray.

[Signature]
2015/12/06

5. Remedial actions taken to avoid reoccurrence of such failure / [EE (C&I/ EEM)'s note]:

13.8 kV bushings of Earthing T/F were damaged. Oil leak was noticed on top of the Y phase of 13.8 kV bushing. Old Earthing T/F removed from U01 (IR & Oil breakdown voltages were tested) was ~~replaced~~ ^{installed} using 20T crane of LVPS. CT connections were checked by EE-Protection (AMHE).

[Signature]
07/12/2015

6. Remarks

Failed ETF was replaced with the spare ETF.

[Signature]

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Officer In-Charge of the Power Station

Date: 06/12/2015

Copy: DGM (MC) – f.i. Pl.

ENGINEER
Kotmale Power Station
Ceylon Electricity Board
SIGNATURE