

**Three Days Training Program on BOILER OPERATION AND MAINTENANCE**  
**02/09/13 To 04/09/13.**

**At the end of the program participants will be able to:**

- Describe constructional details of boiler
- Illustrate characteristic of ID, FD and PA fans and their functioning in boiler operation.
- Describe all steps in boiler operation
- Operate boiler including boiler shutdown including handling of emergencies
- Explain causes of tube failures and methods for its replacement

| Sl.              | Day & date |   | Topics  | Faculty        |
|------------------|------------|---|---|----------------|
| Day 1 (2-Sep-13) | Session 1  | 09.30-10.00 Hrs   | Registration and Introduction   |                |
|                  |            | 10.00-11.30 Hrs   | Carnot and Rankine cycles, Thermodynamic principles and laws.                                 | K Bhanuprakash |
|                  |            | 11.30-11.45 Hrs   | Tea Break   |                |
|                  |            | 11.45-13.00 Hrs   | Boiler construction, pressure parts, boiler drum internals.                                   | K Bhanuprakash |
|                  |            | 13.00-14.00 Hrs   | LUNCH BREAK   |                |
|                  | Session2   | 14.00-15.30 Hrs   | Introduction to Boiler Operation.   | K Bhanuprakash |
|                  |            | 15.30-15.45 Hrs   | Tea Break   |                |
|                  |            | 15.45-17.00 Hrs   | Fuels, combustion and combustion equipments, oxygen controls and Stoichiometry.               | K Rupesh       |
| Day 2 (3-Sep-13) | Session 3  | 10.00-11.30 Hrs   | ID, FD and PA fans, their characteristics, stalling and surging. APHs types and features      | Dr. T ray      |
|                  |            | 11.30-11.45 Hrs   | Tea Break   |                |
|                  |            | 11.45-13.00 Hrs   | Coal mills, warming and start up of coal mills, removal of oil support and mill controls.     | Dr. T Ray      |
|                  |            | 13.00-14.00 Hrs   | LUNCH BREAK   |                |
|                  | Session4   | 14.00-15.30 Hrs   | Pre-checks for boiler start ups, boiler filling, boiler purge and start up, pressure raising. | K Rupesh       |
|                  |            | 15.30-15.45 Hrs   | Tea Break   |                |
| 15.45-17.00 Hrs  |            | Pre-checks for boiler start ups, boiler filling, boiler purge and start up, pressure raising. | K Rupesh  |                |

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|------------------|------------|-----------------|--|----------------|
| Day 3 (4-Sep-13) | Session 5  | 10.00-11.30 Hrs | Boiler shutdown and emergencies, boiler protections, boiler losses and efficiency. | K Rupesh       |
|                  |            | 11.30-11.45 Hrs | Tea Break  |                |
|                  |            | 11.45-13.00 Hrs | Boiler shutdown and emergencies, boiler protections, boiler losses and efficiency. | K Rupesh       |
|                  |            | 13.00-14.00 Hrs | LUNCH BREAK  |                |
|                  | Session 6  | 14.00-15.30 Hrs | Causes of tube failures, tube replacement and hydraulic test of boiler             | K Bhanuprakash |
|                  |            | 15.30-15.45 Hrs | Tea Break  |                |
|                  |            | 15.45-17.00 Hrs | Causes of tube failures, tube replacement and hydraulic test of boiler             | K Rupesh       |

