



PRAGATI ENGINEERING COLLEGE

(Approved by AICTE, Permanently Affiliated to JNTUK Kakinada & Accredited by NBA)

1-378, ADB Road, Surampalem, E.G. District, A.P.-533 437

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Report on Industrial Visit at A.P.G.P.C.L., Vijjeswaram Power Plant



Date(s) of Visit	: 17 th , 18 th August, 2016
Faculty Incharges	: 4 members Mr. S.M. Shariff Assoc..Prof, Ms. K.Geetha Asst.Prof Mr. S. Ashok Reddy Asst.Prof Ms. A.Durga Bhavani Asst.Prof
Student Co-ordinator	: P. Subhash Kumar (CR) EEE-A (2014 admitted batch) : K.Surendra (CR) EEE-B (2014 admitted batch)
No. of Students	: First Batch - 70 members, Second Batch - 61 members
Reporting Time	: 11:30A.M, 17 th Aug,2016 (Batch-1)
Session closing Time	: 02:00P.M, 17 th Aug,2016 (Batch-1)
Reporting Time	: 11:30A.M, 18 th Aug,2016 (Batch-2)
Session closing Time	: 02:00P.M, 18 th Aug,2016 (Batch-2)

Andhra Pradesh Gas Power Corporation Ltd., (APGPCL) **Vijjeswaram Power Plant** authorities gave the permission for 2014 admitted batch of III year students to visit the plant on the on 17th, 18th August, 2016 and accordingly we proceed to visit the plant on **17.08.2016 forenoon** from our college at 10:00 A.M along with 70 students of III B.tech I sem Sec-A as first batch of EEE students accompanying with two Assistant Profesors of EEE Department **Mr. S.M.Shariff** and **Ms.K.Geetha** we reached visiting spot by 11:30 A.M and met **Sri.N. Suryanarayana** Assistant Engineer of the Power plant.

The Assistant Engineer permitted us at 11:40 A.M and provided two Maintenance Engineers for Explaining the Plant Details .Firstly the Deputy Safety Manager Sri. R.Srinivas instructed the students regarding the safety practices to be followed in the plant premises. After that they explained the details of Equipments and its functioning in plant. They also explained the functioning of a gas turbine in a combined cycle power plant and functioning of switch yard. Finally we checked out at 2:00 P.M after through observation of the plant and we came back to college at 3:30 P.M. The next day on 18.08.2016 **forenoon** we started form college at 10:00AM with 61 students of III B.tech I sem Sec-B as second batch of EEE students accompanying with two Assistant Profesors of EEE Department **Mr. S.Ashokreddy** and **Ms. A.Durga Bhavani** we reached visiting spot by 11:30 A.M and met **Sri.G.Srinivas Rao** (O&M) Manger of the Power plant.



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The plant Operation and Maintenance Manager permitted at 11:40 A.M and provided two Maintenance Engineers for Explaining the Plant Details . Firstly the Deputy Safety Maneger Sri. R.Srinivas instructed the students regarding the safety practices to be followed in the plant premises . After that they explained the details of Equipments and its functioning in plant. They also explained the functioning of a gas turbine in a combined cycle power plant and functioning of switch yard. Finally we checked out at 2:00 P.M after through observation of the plant and we came back to college at 3:30 P.M

Plant Details:

The GTPS is the first gas based power plant come up in South-India and commissioned its first gas turbine in the year 1990.

The gas turbine power station at Vijjeswaram was constructed under the technical supervision of APGENCO.APGENCO is the operation and maintenance contractor for the plant from its inspection. APGENCO is operating the plant at its best .The GTPS has awarded Gold Medals for its best performance off identical gas based power plants throughout India for the years 2002-2003 and 2003-2004.

The fuel for gas turbine is natural gas/clean liquid fuel viz.naphtha /HSD. The gas resources of KG basin are near to supplement the short fall of natural gas or as a base fuel supplied by M/S HPCL either from Kakinada / gummaladobbi (60/25km away from GTPS)

The water required for condenser cooling for both the stage 1 and stage 2 is available from the Sir Arthur Cotton Barrage on river Godavari.

STAGE 1:

The company initially installed a 100MW Gas based combined cycle power plant comprising two Gas Turbines one steam turbine. Generations of 33MW each and one steam turbine generator of 34MW capacity with natural gas as main fuel .M/S.BHEL had under taken to execute the most recent combined cycle plant indigenously built 33MW Gas Turbine Generator units for the first gas project in Andhra Pradesh at Vijjeswaram. The company successfully commissioned first phase of the plant containing 2 nos. gas turbine generators and 1 no. steam turbine generator on 31.08.1990, 02.03.1991 and 17.03.1992 respectively.

STAGE 2:

The second stage installed capacity is 172MW with total capacity of stage 1& 2 is 272MW in combined cycle as a natural gas as prime fuel. This stage of the plant contains 1 no. 112MW Gas turbine of GE, USA Make, model frame 9E and 1no. 60MW steam turbine of GE, USA make at site conditions. The plant engineering and design was commissioned on 31.03.1997 and steam turbine was commissioned on 22.12.1997.

220 KV SYSTEM IN GTPS OF APGPCL:

There are two 220KV switch yards for Stage-1 &2

A switch yard is used to evacuate power from 100MW power plant of stage-1 & 172MW power plant of stage-2 to the transmission system. Connection to the existing transmission system is achieved for all four feeders through a LINE IN LINE OUT (LILO) arrangement.

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The generation voltage is 11.5KV, which is stepped up through generator transformer of 11.5/230KV rating. The main 220KV bus is MOOSE conductor and is rated for 800A, 40KA for 1sec. The Transformer feeders are connected to the switchyard through overhead conductors. The circuit includes, lightning arrestors, isolators (with earth switch), current transformers, potential transformer, circuit breaker & isolators

The 220KV switch yard in GTPS stage-1 is the single bus outdoor switch yard with 4 feeders, 2 line feeders & 2 transformer feeders, they are

GTG transformer feeder STG transformer feeder Bommuru feeder Bhimadolu feeder

The 220KV switch yard in GTPS stage-2 is the single bus outdoor switch yard with 6 feeders, 4 line feeders & 2 transformer feeders, they are

GTG transformer feeder STG transformer feeder Bommuru-2 feeder Bommur-3 Feeder
K.KOTA feeder Nidadavolu feeder



Co-ordinators

HOD-EEE