102263-MEC-1248DSn-E-2008
Performance Test Group Lead

Holds a B. Sc. in Mechanical Power Engineering and has more than 14 years' experience in Power block Design, Gas turbine block design / evaluation, Total plant solutions, Performance testing, Co-generation plants design, Performance evaluation of power plants and Water / waste water plants.

PERSONAL DATA

Nationality	:	Egyptian
Birth Date	:	04/02/1985
Gender	:	Male
Marital Status	:	Single
Residence	:	New Cairo

EDUCATION

: B. Sc. in Mechanical Power Engineering, Ain Shams University, 2008

LANGUAGES

Arabic	:	Native Language
English	:	Excellent

COMPUTER SKILLS

: Windows, MS Office, Internet

: Pipe Net

TRAINING COURSES AND CERTIFICATIONS

: PMP Preparation Course, PGESCo Office (Jan. 2017).

: Training in Performance Tests for Combined Cycle Major Equipment, PGESCo Office (2017):
- Training included Studying the following ASME test Code:
  - ASME PTC 6 and ASME PTC 6.2 (Steam turbines).
  - ASME PTC 22 (Gas turbines).
  - ASME PTC 19.5 (Flow measurements).
  - ASME PTC 19.1 (Test Uncertainty).
  - ASME PTC 4.4 (Gas turbine and Heat Recover Steam Generator).
- Studying concepts related to performance test such as plant isolation, measurements uncertainties, boundary conditions, etc.

: Power Plant Cycle chemistry (2017).

: ASME B31.1 Code, PGESCO Head Office (2011).

: Trainings at Sharjah Electric and Water Authority (SEWA), SEWA facilities, UAE (summer 2006 & 2007).

CHRONOLOGICAL EXPERIENCE RECORD

Dates : From 2014 till now

Employer : PGESCo

Job title : Performance Test Group Lead

Job Description :

- Responsible of all performance test activities for the following Combined and thermal cycle power plants:
  - Giza North project (3x750MW, Simple and Combined Cycles).
  - El-Shabab project (2x250MW, Combined Cycles).
  - Damietta project (250MW, Combined Cycles).
  - South Helwan project (3x650MW, Thermal Power Plant).
  - Mazar Project (5x10MW, Gas Engines).
  - Tebbin Rehabilitation project (350MW Steam Turbine).
  - Cairo West (650MW, Thermal Power Plant).
  - Assiut (650MW, Thermal Power Plant).
- As the Performance Test Leader of PGESCo for the last 7 years (5 years as a group leader), I have been exposed to different area related to power plants performance from front end engineering phase including reviewing evaluating performance impacts on equipment design (HRSG, Pumps, etc.), setting performance evaluations criteria for gas turbines, HRGS and STGs, bidders performance evaluation, design phase and during performance test phase where I have gained perfect knowledge of all performance test procedures and test practices of all global industry leaders (GE, MHI, Siemens, STF and Ansaldo) and gaining excellent knowledge on performance sensitivity to boundaries (ambient, GT exhaust pressure, GT inlet pressure drop, fuel properties, fuel temperature, grid frequency, cooling water temperature) and operation setting effects (gas heaters, fuel pressure, degradation, offline washes, control settings, IGV settings) this experience can be summarized as follows:
  - Gas Turbines
    - ❖ Testing Six gas turbines of GE 9F machines, DLN burners (Giza North) operating with NG and Solar oil.
    - ❖ I participated in negotiations with supplier's performance specialist during pre-award meetings to set contract specifications of performance test which include the performance guarantees, performance uncertainties/tolerances, correction curves and degradations calculations methodology and all related curves ensuring that PTC code requirements are addressed and all related PTC codes and related ASTM, standards are referenced in the Contract.
    - ❖ I was involved in performance test procedure review and approval, leading all meetings for planning the test activity including measurement plans and evaluation details.
    - ❖ Participating in pretest discussions regarding machine tuning and setting control constants prior to the test ensuring that tuned machine i.e control constants, IGV angle setting, and reference fuel. In addition to degradation evaluation and

performance recovery estimated after offline wash and scheduled maintenance.
- ❖ Witnessing the performance test and ensuing that the test is executed/data are collected according to the PTC codes, supplier's approved procedures and agreement achieved.
- ❖ Doing all intermediate calculations for determining net power, corrected power, heat rate, corrected heat rate, Exhaust flow calculations in accordance with PTCs calculations samples and procedures methodologies.
- ❖ Reviewing supplier's performance test results, approving the results as applicable.

- Combined Cycles and Thermal Power Plant:
  - ❖ Testing three combined cycles with various HRSG suppliers (STF, Ansaldo Boilers) and steam turbines suppliers (Ansaldo).
  - ❖ Testing four thermal power plants with (Ansaldo Boilers) and steam turbines suppliers (Alstom, MHI and Doosan).
  - ❖ I was involved in performance test procedure review and approval, leading all meeting for planning the test activity including all measurements and evaluation details.
  - ❖ Witnessing the performance test and ensuing that the test is executed/data are collected according to the PTC codes, supplier's approved procedures and agreement achieved.
  - ❖ Doing all intermediate calculations including all corrections required for test results evaluation.
  - ❖ Reviewing supplier's performance test results, approving the results as applicable and evaluating any shortfall in any performance parameter and evaluating Owner damage.
- Studies and Proposals:
  - ❖ I participated in Performance modelling and assessment of Siemens SGT 800 gas turbine (Existing Midelec Plant).
  - ❖ I participated in Sanmar project (EPC contract) negotiations with supplier's performance specialist to set contract specifications of performance test which include the performance guarantees, performance uncertainties/tolerances, thermal models/correction curves and degradations evaluation, ensuring that PTC codes requirement are addressed, and all related PTC codes are referenced in the Contract.

Dates : From 2017 till now

Employer : PGESCo

Job title : Senior / Lead Mechanical Engineer

Job Description :

- Assisting front engineering mechanical activities, including systems conceptual design, preliminary sizing of equipment and setting mechanical main Contract mechanical guarantees.
- Assisting in supervision on detailed mechanical engineering activities including generating P&IDs, design calculations and issuing equipment data sheets.
- Preparing material requisitions issuance for mechanical equipment and systems procurements.
- Participating in design review meetings with the client.
- Performing, designing, and checking calculations.

- Supporting in preparing heat and mass balances.
- Participating and preparing investigation and assessment reports for ongoing power plants.
- Participating in preparing proposals for power plants, cogeneration, and water treatment projects.
- Working for PGESCo as a projects senior mechanical engineer since 2017, I have been involved in the following projects:
  - "NCMP" Combined Heat & Power Plant (CHP):
    - Acting as mechanical lead preparing proposal and participating in conceptual and detailed design.
    - Preparing the P&IDs, calculations, technical evaluation, documents review and system description for the following:
      - Condensate water feed water system.
      - Boiler feed water system.
      - Main steam system.
      - Gas turbine documents review as GT turbine contract specialist.
  - Second handed from PGESCo to ACESCo to company to act as supervisor of the mechanical activities for Libya power plants projects and support the Libyan ministry to studying different proposals:
    - Tobruk simple cycle power plant (4x160MW).
    - Review studies and proposals of EPC contractors for Zowaitena, Tripoli South, Tripoli West.
  - Mosul substation project.
  - Tikrit & Ramadi substation projects: Mechanical Supervisor for MEP document review activities at Iraq substation projects as consultant for Iraq ministry of electricity.
  - Sidi Krir Petrochemical Co. (SIDPEC) Combined Heat & Power Plant (CHP) technical proposal preparation.
  - "Beni Suef" Combined Cycle Power Plant (4x1200MW):
    Participating as a member of investigation team (third party) preparing assessment report as follow:
    - Defected manual valves.
    - Sewage treatment plant.
    - Potable water system.
    - Oily waste transfer and separation system.
  - Jenin Combined Cycle technical proposal specification.
  - "Sanmar chemicals" Cogeneration Plant 126MW (2 x 2 x 1):
    Act as team leader preparing proposal of EPC contract for Sanmar power and steam generation project as follow:
    - Preparing Gas Turbine purchase order technical specification, data sheets.
    - Reviewing the detailed conceptual design of the candidates Gas Turbine vendors.
    - Preparing the performance testing methodology and procedure for the CTGs, HRSGs, and Steam Turbine.
    - Participating in Heat and Mass balance review.
    - Participate in Communication between client and vendor to compromise client technical requirements and vendors.
    - Participating in setting plant technical guarantees.
  - "Mazar" (Afghanistan) Gas Engine Power Plant (5x10MW):

- ❖ Reviewing plant heat balance, setting plant guarantees and performance test methodology.
- ❖ Acting as Water Treatment group member preparing the material requisition, technical specification and water balance for the water/ wastewater and sewage treatment blocks.

- "South Helwan" Thermal Power Plant (3x650MW): Acting as Water Treatment group member reviewing supplier technical documents and system description for water and wastewater treatment package.
- "West Damietta Add on" Combined Cycle Power Plant Project (250MW).
- "New Assiut Add on" Combined Cycle Power Plant Project (250MW):
  - ❖ Preparing material requisitions, purchasing order, technical specification, technical evaluation and documents review for vertical centrifugal pumps, horizontal pumps (checker), condensate pump.
  - ❖ Preparing the P&IDs, calculations, technical evaluation, documents review and system description for the following:
    - ➢ Condensate water feed water system.
    - ➢ Boiler feed water system (checker).
    - ➢ Oily wastewater sump system.
    - ➢ Chemical wastewater sump system.
    - ➢ Steam turbine lube oil-piping system.
    - ➢ Hydraulic oil piping system.
    - ➢ Hydrogen sealing oil-piping system.
    - ➢ Chemical injection system.
    - ➢ Service water system (checker).
    - ➢ Air removal system.
- "Lamlouda" (Iraq) Simple Cycle Power Plant (2x50MW):
  Acting as Water Treatment group member, Preparing the material requisition and technical evaluation for the following packages:
  - ❖ Multimedia filtration system.
  - ❖ Reverse Osmosis system.
  - ❖ Chlorination system.
  - ❖ Water Balance calculation.

Dates : From Dec. 2008 till Jun. 2017

Employer : PGESCo

Job title : Responsible Mechanical Engineer

Job Description :

- Performing, designing and checking calculations.
- Preparing Tender Documents (Technical specification, P&IDs, etc.).
- Evaluation of the Technical proposals and performing evaluation reports.
- Handling specific equipment contract packages and coordinate between the owner and the vendors.
- Preparing Technical proposals for Tender Documents.
- Working for PGESCo as a Projects Responsible Mechanical Engineer since 2008, I have been involved in the following projects:
  - "Giza North" Combined Cycle Power Plant Project (3x750MW):
    - ❖ Responsible engineer preparing the tendering and bidding documents, technical specification, technical evaluation and

documents review for the Combustion Turbine Generator package.

- ❖ Responsible engineer for Preparing the P&IDs, calculations (piping and equipment sizing), equipment specifications and system description for the following systems:
  - ➢ Circulating water system (steady state).
  - ➢ Demineralized water transfer system.
  - ➢ Natural gas system.
  - ➢ Light fuel system.
  - ➢ Chemical injection system.
  - ➢ Sewage transfer system.
  - ➢ Oily and chemical waste water transfer system.

- "Abu Qir" Thermal Power Plant Project (2x650MW):
  - ❖ Responsible engineer for document reviewing and package coordinating for Mechanical Equipment and Pipe Installation package.
  - ❖ Responsible engineer for Preparing the P&IDs, calculations and system description for the following systems:
    - ➢ Demineralized water transfer system.
    - ➢ Oily and chemical waste water transfer system.
    - ➢ Light fuel system.
    - ➢ Instrument air system.
    - ➢ Sewage transfer system.
- "El-Tebbin Rehabilitation" Thermal Power Plant Project (2x350MW):
  - ❖ Supervising mechanical activities for document reviewing and checking commissioning activities and steam blow.
  - ❖ Participating and assisting in preparing design review meetings with the contractor and the client.

Field of experience :

- Over 14 years of professional experience in power generation projects (combined and thermal cycles), participating in projects' different phases including front end engineering, total plant solution development, developing performance tests specifications and performance evaluation tools, tenders evaluation, power block detailed engineering activities, Vendor and EPC design reviews, Specialty in Preparing Gas Turbine specifications / design review and managing power block equipment performance tests.
- Expertise:
  - Project engineering: supervising and participating all mechanical engineering activities of power plants projects including contract proposals execution and evaluations during tender phase, participating in EPC and EPCM projects, participating conceptual and detailed design, all power block mechanical systems design, engineering, equipment sizing, operation philosophy, selection, and equipment technical specifications preparation including all critical systems (main steam, condensate, and boiler feed systems).
  - Gas Turbine Specialty: Responsible of preparing CTG tender specifications for simple and combined cycle projects, preparing technical evaluation reports in bids evaluation phase for different OEMs frames (GE, Siemens, MHI, and Ansaldo), design review of CTG engineering submittals (auxiliaries and GT operation philosophy) during design review phase for different GT frames (GE

9F, Siemens SGT 800), involving and preparing all interface GT auxiliary and supportive system design details, preparing performance testing methodology, approving manufacturer test procedure, witnessing the test, reviewing and approval for the CTGs performance test reports, in addition to involvement in all emerged issues during CTG commissioning and operation.

- Performance test specialty: Excellent command on ASME PTCs, managing all performance tests activities including specifying performance test methodologies, developing performance evaluation tools, performance test procedure review, performance test witnessing, performance test related calculations and approving Contractors performance test results.
- Chief office: review of ongoing projects, setting performance tests methodology.