



Nuclear Regulatory Commission
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Stricken:

SNC000025

Christopher B. Lazenby

Curriculum Vitae



CHRIS LAZENBY, P.E.
Senior Engineer

B.S., Mechanical Engineering,
Auburn University, 1997
M.A., English
University of Alabama at Birmingham, 2007

EXPERIENCE SUMMARY

Mr. Lazenby has over 12 years of experience in power plant design and construction including conceptual design studies, equipment design specifications, and equipment bid evaluations. His experience includes design of major plant equipment including thermal cycle equipment and the plant cooling system equipment. Mr. Lazenby's design experience includes various types of unit designs including nuclear, fossil, combined cycle, and co-generation units. Overall experience includes major plant equipment and systems including deaerators, combustion turbines, and miscellaneous heat exchangers. Experience within the past 9 years has primarily been associated with power plant cooling systems which include cooling towers, cooling ponds/lakes, air-cooled condensers, heat exchangers, steam surface condensers, air removal equipment, circulating water pumps, service water equipment, and related piping systems. Experience also includes the use of Gate Cycle models and the development of in-house cooling system simulation models for component and system design/evaluation.

RELATED EXPERIENCE

Power Engineering experience includes the development of power cycle equipment design in support of resource forecast modeling (future generation plans) which includes consideration of various types of units including: pulverized coal unit; pulverized fluidized bed coal unit; gas fired combined cycle; nuclear unit; and simple cycle combustion turbines. Additional power engineering experience includes supporting the development of proposals and providing engineering consulting services for various power generation projects.

Cooling System/Cycle Design experience includes various types of cooling system technology and feasibility studies. Experience includes the development of equipment technical specifications, bid evaluations, and applied research of cooling systems equipment technologies. Mr. Lazenby's experience includes design and operating knowledge for various types of cooling cycles including closed loop, once-through, and/or cooling ponds, serving nuclear units, fossil units, and co-generation units. Design experience includes the optimization of the cooling system equipment (towers, pumps, and condensers) for new and/or existing units with consideration of performance, capital cost, and operation and maintenance. Expertise includes development of computer programs for selection of cooling cycle

equipment design as well as analysis of equipment and/or plant performance. Computer experience also includes modeling of cooling system/cycles and performance analysis for simulation of various cooling system(s).

Cooling Tower experience includes the engineering design and application of natural draft and/or mechanical draft cooling towers for numerous power generating facilities. Design experience includes the development of tower design standards for utilization of fiberglass construction materials for both cross-flow and counter-flow type cooling towers. Cooling tower experience includes consulting services to plant personnel (field inspections, equipment trouble shooting, etc.) in support of operations and maintenance activities. Cooling tower experience includes field testing for establishment of contractual guarantees as well as for unit performance monitoring. Cooling tower experience includes feasibility studies for modifying and/or upgrading existing towers for enhancing tower performance and reducing operations and maintenance costs. Retrofit experience includes refurbishing existing cooling towers, installation of helper cooling towers for supplementing existing tower performance, and installation of new cooling towers to support conversion of once-through units to closed-loop cycles.

Condenser Design experience includes the engineering design and application of various types of air-cooled and steam surface condensers including single pressure, multi-pressure, single pass, and multi-pass. Mr. Lazenby's experience includes the development of condenser design standards for field erected and modular type condenser construction. Condenser experience includes consulting services to plant personnel (tube inspections, air leakage trouble shooting, etc.) in support of condenser operations and maintenance activities. Responsibilities have included conducting feasibility studies for modifying and/or upgrading existing condensers for enhancing overall unit performance and reducing operations and maintenance costs and nuclear uprate studies to determine operability of condensers on nuclear units at higher than design thermal loads. Retrofit experience includes retubing condensers and modification of condenser waterbox and associated piping systems, replacing hotwells, and application of various types of on-line condenser tube cleaning systems.

Circulating Water Pumps/System Design experience includes the engineering design of various types of circulating water pumps and piping systems including mixed-flow vertical can-type pumps and vertical volute type pumps. Mr. Lazenby's expertise includes the capability for providing hydraulic analysis for determination of system pumping head requirements as well as the testing and evaluation of pump performance.

RELATED PROJECTS

Special Job Interests include the development of computer models for simulation of actual cooling system performance in conjunction with actual unit performance. Cooling cycle simulator computer programs are developed as a design tool in support of conceptual design and equipment selection. The cooling cycle simulator computer programs are also used in supporting plant performance monitoring and evaluations of cooling cycle modifications. The cooling cycle program provides a graphical simulation of equipment performance including condensers, cooling towers, and different types of turbines. Film fill designs used in counter-flow type cooling towers have a tendency to foul or plug under certain water chemistry conditions; Mr. Lazenby is involved in the investigation of anti-fouling fill designs for prevention of fouling in counterflow cooling towers.

CERTIFICATIONS AND AFFILIATIONS

- Registered Professional Engineer: Alabama PE # 25431
- American Society of Mechanical Engineers – Member and Committee Representative
 - ASME - Power Test Code (PTC) 23 – Cooling Tower Test Code - Alternate Member
 - ASME - Power Test Code (PTC) 30 – Air Cooled Condenser Test Code - Committee Member
- Cooling Technology Institute
 - Owner/Operator Committee Chairman 2004-2005
 - Engineering Standards & Maintenance Committee Vice-Chair 2007-current
 - Board of Directors 2008-current
- EPRI Condenser In-Leakage Task Force – Group Member