



SPECTRANEWS

VOICE OF THE SOUTHERN CALIFORNIA CHAPTER

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Vibration Institute
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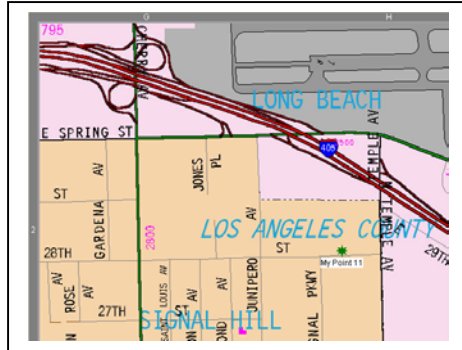
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**May 2003 Meeting:
SHOT PEENING IN STEAM TURBINES**

By

Ralph J. Ortolano, P.E., Consulting Engineer,
Turbine RESCUE

Robert L. Kleppe, Manager, Technical Services, Metal
Improvement Company

Russell W. Chetwynd, Turbine Engineer, Southern
California Edison Company

Wednesday, May 28, 2003 – 2667 East 28th

Street, Suite 520, Signal Hill, CA

3:00 pm to 5:45 pm – TableTop Exhibit / Beer & Peanut Social. Former Exhibitors Listings – Western

Energy Solutions – Electrical Energy Equipment, **DyTran Instruments** - Transducers, Modal

Hammers, **CSI** - Test/Analysis Software & Hardware, **5:45 pm – Barbecue Dinner, Space is limited to 30 so**

please register early! \$20 Members, \$15 Students, \$28 Nonmembers, \$100 TableTop Exhibit, Visa & Mastercharge

accepted. **Attendees:** RSVP to Sal DiFrancia, by Thursday, May 15th, by e-mail, phone or fax. **Exhibitors:** RSVP to

Chief Engineering, 562-421-6730, fax 6890, e-mail chiefeng@gte.net.

7:00 pm: SUMMARY

Steam turbines designed by virtually all turbine manufacturers have used shot peening and/or compression rollers to enhance fatigue life. More recently, shot peening has been used to improve metal life subjected to stress corrosion cracking (SCC), and intergranular attack (IGA).

In the last twenty-five years, shot peening has been used to combat corrosion fatigue (CF) in conjunction with the use of corrosion resistant coatings in steam turbine blading operating in corrosive, wet steam environments. Also, coatings have been given consideration after shot peening to further improve SCC resistance in steam turbine rotor discs, but use was deferred when field application became a necessity. To date, shot peened and coated blading, with the coating intact, has performed without failure, but the period of service (about 15 years) is considered too short to project success for the entire design life of the part because it is operating in a pitting inductive wet steam environment.

This paper will discuss the benefits of shot peening steam path parts for steam turbines used in fossil fuel, nuclear, and geothermal service. It will suggest the possible benefits of shot peening welded parts subjected to elevated temperature service, and confirm the benefits of in-situ shot peening to achieve a limited life improvement in a nuclear steam turbine repair. It will also discuss the role the operating environment may have in limiting the life of shot peened parts.

Speaker Biographical Information: Ralph J. Ortolano, P.E.

Ralph is a Consulting Engineer and owner of Turbine Rescue, has 50 years of experience in steam turbines, including their design, specification, testing, installation, operation, inspection, modification and repair. He retired from Southern California Edison Company (SCE) after 20 years of service, and continues with SCE under contract as Chief Consultant. He has authored more than 100 technical papers, 22 U.S. patents, is an American Society of Mechanical Engineers (ASME) Life Fellow, recipient of ASME's George Westinghouse Gold Medal in 1991, SCE's William R. Gould Award in 1992, and USMMAAA's Outstanding Professional Achievement Award in 1994. He is a graduate of the U.S. Merchant Marine Academy, and Santa Clara University.

Mr. Ortolano has presented twice at the Chapter Meetings on Low Pressure Turbine vibration control and blade design with great response in his ability to speak on technical subjects to a wide range of technical and management groups & personnel.

June 26, 2003 Meeting: Guil Cornejo, RPM, will speak on Internal Combustion Reciprocating Engine sources of vibration, a brief survey including both seismic and torsional vibration.