Varied role for materials specialist

Michael Porfilio is the Director of Operations at Anderson Laboratories, a full service metallurgical laboratory. Michael is the Corporate Continuous Improvement Champion driving the strategic planning process of the laboratory. His non-destructive testing background as the Corporate NDE Level III has opened new opportunities for Anderson Laboratories, Inc. In general, Michael's work is widely varied and covers many industries including nuclear power generation. Stainless Steel World spoke to Mr. Porfilio about the varied and challenging role of a materials testing laboratory and what his specific role involves.

By Joanne McIntyre

Based in Greendale, Wisconsin (Midwest suburb of Milwaukee), USA, Mr. Porfilio has worked in support of both the domestic and foreign stainless steel industry for thirty years. "During that time my primary duties were as a metallurgist, contract review specialist, and as a Quality Management officer. I've also gained extensive experience in project management as well as specification and code compliance for industries supplying to government defence / NAVSEA, as well as the nuclear, food and dairy, pharmaceutical, maritime, petrochemical and power generation industries," he explains.

Alloy testing specialists

"Here at Anderson Laboratories we perform material analysis such as chemical analysis, mechanical testing (tensile, impact, hardness, etc.) of basically all alloys including stainless steels, nickel alloys and titanium," continues Mr. Porfilio. "We assist in process control of heat and lot verification but also perform complicated failure analysis of overloaded, overstressed or corroded components as well as metallographic image analysis. We commonly see stainless steels from the alloy families 200, 300, 400, wholly Austenitic, duplex, and precipitation hardening grades. Every week we are also dealing with exotic and high performance alloys such as Hastelloys, Inconels, Incoloys, Invars, Kovars, in both cast and wrought formats equally." A typical working day for Mr. Porfilio involves directing laboratory operations, coordinating customer questions, project management, assisting in the development of quality systems and process auditing for continuous improvement. "Customer service comes in many forms, ranging from interpreting specifications to assisting in the correct course of action for inspection and testing, as well identifying materials for our customers. Customers needing answers for materials anomalies and process control are always a priority for us." "While my work is quite varied, the aspect that interests me the most is solving problems for the different industry sectors we deal with, and determining the direction that our organization is heading both today and into the future. The advancement of testing technologies which allow us to verify materials and

Anderson Laboratories has Certified Welding Inspectors who oversee all aspects of weld and personnel qualification testing.

to measure attributes such as electrical conductivity, magnetic permeability, material hardness, chemical analysis via XRFPMI is astounding. The technology that allows the employment of small, electronic devices such as PMI analyzers and EcoTip testing units has come such a long way from the first generation models. These tests performed now with small, solid state logics in portable testing equipment and great precision," he continues. "The most challenging part of my job is the constant changing influx and balancing of the incoming work. Going from analyzing a 300 series spatula used in the food industry to qualifying NORSOK compliant Super Duplex materials requires you to shift gears on a technical level quickly. This can be very challenging."

Supporting nuclear customers

"At the laboratory we support many customers that are involved in Class 1, Class 2, Class 3 as well as safety related metallic samples," explains Mr Porfilio. "These samples come in the form of coupons, test bars and other component forms. We specialize in the dedication for use following the guidelines of EPRI NP5256. Besides the dedication of material for nuclear applications we perform services of qualifying Welding Procedure Qualifications Records (PQR's), Welding Personnel Qualifications (WPQ's), as well as witnessing of welding activities for customers that service the nuclear and fabrication world." "We're currently very active in the dedication of commercial materials for nuclear applications in alloys such as AISI grades 316, 316L, 317, 317L, 304, 304L for standard stainless steel grades. Some alloy steel such as AISI 1045, 4140, and 4340 are in the dedication process and also require many different tests and verifications." Any business involved in the nuclear industry faces particular challenges, and a laboratory is no exception, explains Mr Porfilio. "It's essential to keep our quality systems compliant to the requirements of not only ISO/IEC 17025 but the applicable sections of ASME Boiler and Pressure Vessel Code with the emphasis to verbatim compliance to section III, NCA3800 and 10CFR50, appendix B as well as the other countries that we service and their respective nuclear codes and regulations. Keeping our customers informed as to the necessary nuclear requirements and assuring that their incoming paperwork, properly identified samples and purchasing documents are in order takes effort. We take it as our responsibility to assist customers in making sure that their potential audit trail remains as clear and unobstructed as possible in processing their samples. The requirements of 10CFR21 is followed on all safety related and containment related items."

Looking to the future

When asked to speculate about the use of high corrosion resistant alloys in the future, Mr Porfilio says: "I would think that power generation applications for high performance materials will continue to grow. Any pressure vessel construction that has supported weldable grades will continue to evolve into second and third generational materials families. In terms of improvements, I'd like to see more available technical data for engineers, metallurgists, and material scientists to purchase or access to assist them in the decision making process in manufacturing components for exotic materials." "If there was one message I could get across to suppliers, it's that it would be nice to see a continued effort from the wrought or cast products persons and ensure that proper welding and brazing materials are available along with the necessary technical parameters for the welding personnel. A continued presence on the ASTM committee level is most important to allow the committees to evolve and address the concerns that the industry is taxed with. I'd also like to see ongoing requests to agencies like ARMI (Analytical Reference Materials International) who produce certified reference materials to create relevant CRM's for material testing validation and the certification process."

Mike Porfilio