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Malcolm Baldrige National Quality Award 1988 Recipient

Westinghouse Electric Corporation

Commercial Nuclear Fuel Division

When electric utilities operating nuclear power plants install fuel-rod assemblies made by the Westinghouse Commercial Nuclear Fuel Division (CNFD), they can be 99.995 percent certain that each of the thousands of rods supplied will perform flawlessly. Realizing that future business depends on continued excellence in product performance, CNFD is pushing its all-important dependability rating even higher.



Prior to the early 1980's, the CNFD quality goals were geared toward satisfying regulatory requirements for fuel-rod assemblies. Then, motivated by stiff competition and demanding customer requirements, it raised its sights with the objective of being recognized as the world's highest-quality supplier of commercial nuclear fuel.

The Commercial Nuclear Fuel Division of Westinghouse is building a quality culture that asks employees to do "the right things right the first time." This philosophy makes every action by every employee a quality initiative. Customer satisfaction is the guiding principle, whether it is the ultimate customer or the next person in the process.

CNFD uses a "Total Quality" approach built upon four imperatives for continuous quality improvement: management leadership, product and process leadership, human resource excellence, and customer satisfaction. Progress is measured by a unique system called "Pulse Points." The system tracks improvements in over 60 key performance areas identified with statistical techniques and other evaluative tools, and it helps set measurable goals within each unit of CNFD, down to the jobs of hourly workers.

Product and service improvements attributable to the seven-year old program have paid business dividends. The value of new orders in 1987 was the highest in the decade.

CNFD: A SNAPSHOT

Begun in 1969 and now part of the Westinghouse Nuclear Fuel Business Unit, one of 26 such units in the company, CNFD currently employs nearly 2,000 people at three sites. The Specialty Metals Plant, near Pittsburgh, produces the zircalloy tubes that encase pellets of uranium dioxide fuel processed at CNFD's Columbia, South Carolina plant. Final fabrication of fuel-rod assemblies is also done at the Columbia Plant. Headquarters Operations and Nuclear Engineering activities are located in Monroeville, Pennsylvania.

The CNFD currently supplies about 40 percent of the U.S. market for fuel-rod assemblies and about 20 percent of the world market. Fuel assemblies supplied by the Columbia Plant accounted for nearly seven percent of U.S. electrical needs in 1987.

"TOTAL QUALITY"

CNFD uses state-of-the-art technology, such as robotics and other automated processing equipment, supercomputer simulations, expert systems and laser-diagnostics, and laser welding. It estimates that quality-related decisions have dictated 75 percent of its capital allocations during recent years. Management, however, attributes CNFD's substantial improvements in quality and efficiency not so much to advanced technology as it does to a "turned on" work force and to CNFD's Total Quality approach to operations.

Rather than having a chief quality officer, CNFD assigns responsibility for directing and coordinating quality improvements to the general manager and his various staff functions. These managers form the CNFD's Quality Council, which sets policies, plans and strategies, and directs the quality improvement process. Management's rationale is that quality concerns must be fully integrated into all design, production, and customer service activities.



In strategic planning, top management develops formal quality initiatives and Pulse Points that are deemed most critical to improving performance and customer satisfaction. Supporting, measurable goals, all aimed at accomplishing divisional objectives, are developed in each of the departments and then for each worker. Progress is monitored through an extensive data-collection and trend-analysis system. Pulse Point trends are reviewed each month in a teleconference that includes top management at each division site.

Workers directly address quality improvement opportunities and help devise initiatives through their participation in project oriented teams. Nearly 1,400 employees were members of 175 such teams in 1987. About 90 percent of all workers have undergone quality awareness or quality-related training during the past three years. CNFD maintains close -- usually daily -- contact with its utility customers and regularly collects technical data to

evaluate the performance of its fuel assemblies. Customer service plans are created for each client and are jointly reviewed each quarter. A customer's Fuel Users Group meets twice a year to share information and discuss needs for new products. Consistently high scores in surveys and customer-conducted audits reflect high levels of satisfaction. A more telling indicator, however, is repeat business. Existing customers accounted for more than 90 percent of the orders placed in 1987.

Although its eye is on the bottom line, CNFD management deliberately did not include cost concerns in its quality improvement program, believing that gains in quality would spawn cost-reductions through increases in efficiency. Results achieved between 1984 and 1987 confirm this belief. For example, first time through yields in the manufacture of fuel rods increased from less than 50 percent to 87 percent, substantially reducing scrap, product reworking, and manufacturing cycle time. This helped CNFD achieve over three years of 100 percent on-time delivery of high-quality products.

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