

# ECS promotes 'Life Cycle Engineering'

by Deborah Nason

**W**hen engineer C.R. "Buddy" Newman joined the Roanoke office of Engineering Consulting Services, Ltd (ECS) three years ago, he introduced a consulting paradigm so cutting-edge, there wasn't even a name for it yet. He calls the concept "Life Cycle Engineering" — consulting and project oversight for manufacturing companies over their entire life cycles.

with the needs of the client company. Then they coordinate and oversee major projects — along with offering certain direct services — over the life span of a company. The small team of 15 engineers and scientists has undertaken many major projects, such as managing the construction of a \$500 million Dell facility in North Carolina.

The Roanoke office of ECS is part of ECS Mid-Atlantic, a divi-

from concept development to planning and design to construction management to operational improvement. They may step in at any point during the life cycle; however, their business model is based on remaining involved with a client company throughout its organizational life. "What we do is really so simple that it can be found on the back of a ketchup bottle," says Newman. "Henry John Heinz founded his company in 1876 with the ideal that 'to do a common thing, uncommonly well' brings success."

So what is "common" about life cycle engineering? "The work itself is common," he says, "[but] how it is done is not. We partner with the companies who are our clients — we become an extension of their staffs. True, it is common to build a factory [for example], but it is not common to have the continuity of a single individual throughout the process and beyond.

"We consider ourselves general contractors of idea management," he continues. "We're the only ones who maintain the continuity of the organization's ideas and concepts through all phases of its development."

How is continuity at risk? "By using numerous individual contractors to do portions of the job without a management that extends from the project's inception through to its completion, institutional knowledge is lost," he explains.

"For example, the architects complete their drawings and move onto a new project. Also, the owner's project manager for construction is virtually always different from the eventual plant manager. The construction manager on the owner's side may be from



*C.R. "Buddy" Newman, principal scientist and Holly H. Williams, staff engineer, in front of the ECS Ltd, Roanoke office*

Companies contract with a number of short-term consultants for projects ranging from process improvement to construction to environmental management. Constant communication and monitoring of an ever-changing cast of contractors is an extra burden for plant management.

This is where the ECS Roanoke team comes in. First they become intimately familiar

sion of the ECS Group, which has 27 offices throughout the U.S., and employs about 1,000 people. The core services of the company include environmental analysis, geotechnical analysis and construction materials testing.

Newman has made these three core services part of a continuum of services for manufacturing companies. The specialists in his office offer consulting services ranging

another facility for instance. In some cases, he may even be from a facility in another country."

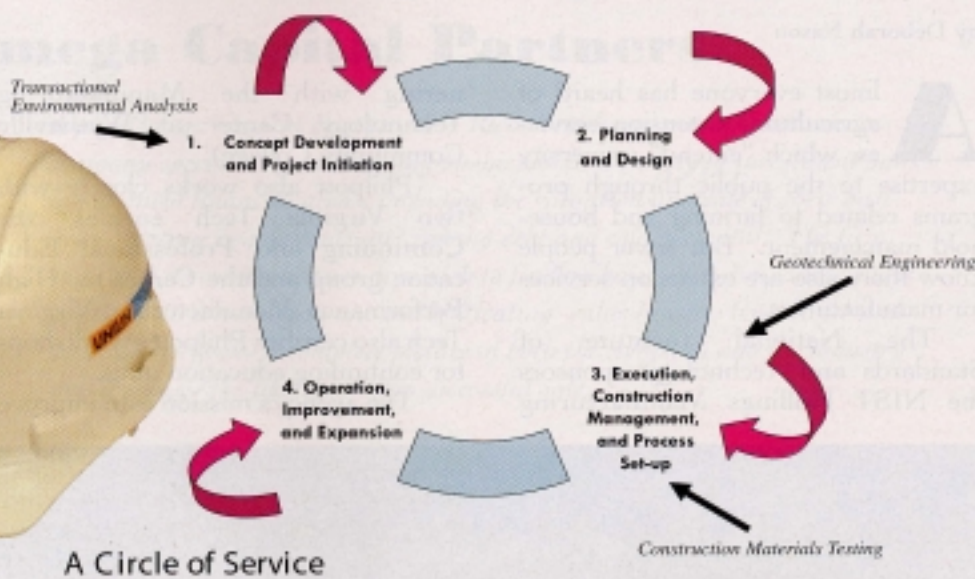
As new players come and go, says Newman, each must learn the patterns and goals of the company owners. "We are left as being the only single point that has a full grasp of the project objectives and history. We know 'where the bodies are hidden.' For example, a pipe may not have been installed underground in strict accordance with the drawings.... But we can find it quickly because we were there when it was installed."

Newman describes a typical life cycle of services for a manufacturer:

- ◆ **Concept development and project initiation:** "We pick the brain of the owner and force him to understand what he really wants." If new construction is involved, for example, consideration is given to issues such as traffic flow, labor forecasts, skills assessments, etc. After this, site selection begins. ECS interviews architecture and engineering firms on behalf of the client and provides rigorous environmental site assessments on potential sites.
- ◆ **Planning and design:** During this phase, "We analyze the process to ensure that the initial concept is compatible with the regulatory environment." Other services include obtaining necessary permits, assessing process equipment and negotiating purchases.
- ◆ **Execution:** Through its geotechnical analysis, ECS works with the architecture and engineering firms to avoid what Newman calls "overdesign."



## ECS Mid-Atlantic, LLC Life Cycle Engineering



ECS also tests construction materials such as concrete, steel and asphalt to be sure they meet project requirements. After the facility is built, ECS consultants are also involved in equipment arrangements and ergonomics.

- ◆ **Operation improvement:** "We are still a member of the client's team," he says, "and we develop and implement processes related to standard operating procedures: training, hiring, regulatory requirements. We are involved in continuous improvement — identifying needs and focusing on what's next — which brings us back to the beginning of the cycle."

ECS last year worked with Arkay Packaging, a carton manufacturer, during the course of its \$11 million expansion in Botetourt County. "ECS effectively [managed] multiple contractors on-site and [identified] problems that needed timely resolution," says the former plant manager, Richard Legler. In addition, "ECS certified all designs through rigorous analysis and structural evaluation,

to include on-site testing, lab analysis, field reports, and constant status follow-up."

In Wytheville, ECS provided environmental management to Longwood Elastomers, a manufacturer of rubber molded products for the automotive industry. Services included worker training, needs assessments, and environmental health and safety coordination. "We taught them how to do what they needed to do," says Newman, "and saved the company \$40,000 [in pollution penalties]."

Contract furniture finisher Southern Finishing Co. in Martinsville also will realize significant savings because of ECS' efforts — to the tune of \$485,000 during the next five years. With a focus on process improvement, the manufacturer streamlined its roster of chemical products from 1,375 to less than 100, "resulting in a ten-fold decrease in problems," Newman says.

Referring back to the statement on the back of a ketchup bottle, Newman sums up the simple concept that makes "Life cycle engineering" so powerful: "We're the eyes and ears of the over-taxed owner over the life of the company."