

Wanted: Corrosion Professionals

The Energy Industry Faces Challenges in Satisfying the Demand for Experienced Corrosion Personnel

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On any given day, the search for employment opportunities for corrosion professionals turns up quite a few leads from all over the globe. This appears to be especially applicable to the energy industry in North America, where companies are vying for seasoned corrosion pros as well as the less experienced novices to fill job openings. Corrosion technician trainee, corrosion specialist, corrosion engineer, corrosion analyst, senior corrosion lab manager, cathodic protection (CP) specialist, pipeline rehab corrosion inspector . . . these are just a few of the dozens of corrosion jobs that are posted by corrosion service companies, state governments, employment agencies, career centers, and Internet job sites.

Industry managers anticipate that the number of available corrosion positions will increase—and continue an upward trend described by Delano P. Wegener, Ph.D., principal of CorrosionJobs.com (Imperial, Missouri), an online employment agency that focuses on the corrosion industry. Wegener, who has operated the site for the past seven years, notes that the number of listings he receives has increased dramatically since 2003, a development he attributes to the general improvement in the corrosion industry.

While this is good news for those who are searching for a corrosion job, it poses a challenge for companies that are laboring to find and keep experienced professionals.

The Number of Corrosion Jobs Increasing

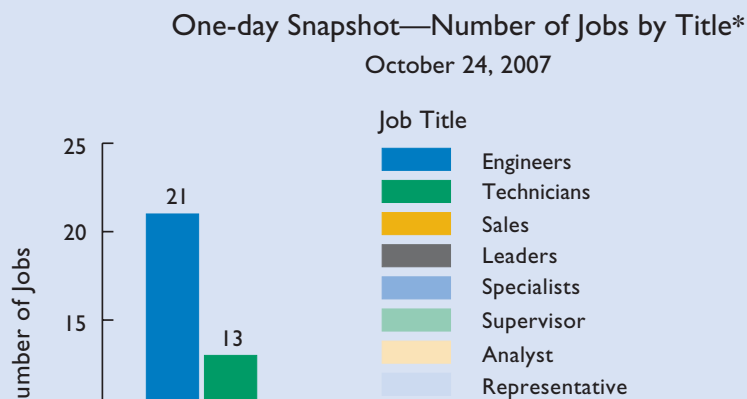
Comments from industry sources point out several factors that appear to be contributing to the upswing in the corrosion-related job market experienced by the energy sector during the past three or four years. On the regulatory front, managers report that the surge in the number of corrosion jobs is fueled in part by state governments' focus on pipeline safety and integrity, and subsequent directives that set requirements for scope and implementation of pipeline procedures.

"Pipeline integrity mandates by the

government are pushing the demand for personnel," says Troy Rankin, principal of Farwest Corrosion Control Company (Gardena, California), a supplier of CP products, installation services, field testing, and engineering services to the oil and gas, pipeline, water, wastewater, power, marine, and telephone industries. "With the increased emphasis on pipeline safety, we're seeing a need for additional skilled people to monitor and maintain pipeline integrity."

In Canada, an economic boom from oil and gas activity has sparked an increase in corrosion jobs available, and over the last two years the number of jobs has surpassed the number of workers, says Dennis Zadery, NACE International CP Specialist and senior integrity engineer with CIMARRON Engineering, Ltd. (Calgary, Alberta, Canada), a service company that provides engineering services ranging from design and construction to maintenance and rehabilitation for pipeline and facility operators in Canada, the United States, and throughout the world. When construction of new systems is planned, corrosion professionals are typically needed to factor corrosion mitigation into the initial equipment design.

Zadery notes that aging infrastructure also plays a role in the burgeoning job market stemming from the increased



* Source: NACE Career Center, CorrosionJobs.com, Jobs.com, Info Oil Careers

energy activity in Canada. As pipelines and equipment age, corrosion issues develop and more attention is required to maintain system integrity. This, in turn, increases the need for corrosion professionals to look after the maturing infrastructure. When large energy companies purchase other energy companies, they tend to acquire older assets, which add to the collection of equipment that requires corrosion attention. Because smaller companies may not retain corrosion professionals to look after their assets, Zadery explains, the acquisitions also generate a need for additional corrosion personnel.

Whether the demand for corrosion personnel is increasing to meet more regulated corrosion-maintenance requirements, manage maturing equipment, or fill the needs of the growing energy sector, industry sources all emphasize one significant trend—that service company clients and governmental agencies are requesting more formally trained and experienced corrosion professionals, which raises the bar on employee requirements.

Which Jobs Are Available?

To get an informal snapshot of the types of available career opportunities, on October 24 the author visited several career-oriented Web sites in search of corrosion jobs either listed as active or posted within the last 30 days. Sites visited were the NACE Career Center

(www.nace.org), CorrosionJobs.com, Jobs.com, and InfoOil Careers (www.infooil.com). The search targeted positions specifically titled “corrosion,” except on the NACE Career Center and CorrosionJobs.com Web sites, where all active listings were included. Some ads resulting from these searches were aimed to fill overseas positions, but the majority of the openings were in the United States and Canada. The findings are listed in Figure 1.

According to reports provided by the NACE Career Center, it received 168 job postings between January 1, 2007 and October 24, 2007, up from a total of 162 job postings in 2006. Corrosion positions in the engineering category accounted for 30% of the job postings, followed by technician (20%), inspector (10%), management (8%), research (8%), sales/marketing positions (5%), and all other categories (19% total). See Figure 2. Approximately 28% of these postings were located in Texas, 8% in Louisiana, 4% in both Alaska and California, and 3% each in Illinois, Ohio, Washington, and Alberta, Canada.

Wegener reports that CorrosionJobs.com receives between 75 to 100 job listings yearly, with corrosion technicians being the most sought after on that site, followed (in descending order) by requests for specialists, engineers, project managers, and researchers. Approximately 50% of the Web site’s listings come from ser-

vice companies, 40% from pipeline and operating companies, roughly 5% from state transportation departments, and a few from employment agencies and other sources. Service companies in Houston, Texas comprise between 30 to 40% of the site’s listings, and approximately 20% come from the Northeast, which includes Maryland and states northward up to Canada.

Over the last four years, Wegener notes, listings coming through CorrosionJobs.com that require NACE certification have steadily increased and now almost all listings call for candidates to be NACE certified. Additionally, he adds, most openings for corrosion technicians now require a two-year associate’s degree as the minimum educational requirement. “Employers are looking for more experienced people with a higher level of education and NACE certification,” says Wegener.

While job titles and specific duties vary from one posting to another, CP seems to be a commonly requested job responsibility in many of the listings for energy-related corrosion positions. When viewed on October 24, at least 10 of the 19 active postings on the NACE Career Center Web site listed CP knowledge as a job requirement. Wegener reports that CP specialists are widely sought through CorrosionJobs.com, and very often employers are looking for experienced personnel with bachelor degrees and NACE certification.

A similar scenario holds true for Corpro (Medina, Ohio), a worldwide service company that provides corrosion control engineering and construction services, systems, and materials to the oil, pipeline, infrastructure, environmental, and energy markets. Corpro, too, is on the lookout for experienced CP personnel—particularly those who are NACE certified, says Karen Domingue, Corpro’s vice president of Human Resources.

Domingue mentioned that in October, Corpro had eight corrosion technician positions open in various areas around the country. Typically, she notes, the company has a yearly average of 40

to 50 jobs available, mainly for corrosion-related pipeline positions and some coatings positions, located predominantly in the south central United States and the West Coast. She explains that these positions cover a range of experience requirements—from entry level, which requires a mechanical inclination and some college, to senior engineer, which requires a B.S. degree and a minimum of eight years of experience.

Other service companies interviewed also rank CP professionals as a high priority on their hiring list. According to Rankin, Farwest Corrosion Control is continually looking for experienced corrosion professionals with various NACE CP certifications. Experience is also key, he says, because no two systems or two customers are alike. Professionals gain a tremendous amount of knowledge through exposure, observation, and practice. In October, his company was actively searching for a high-level corrosion specialist.

Terry May reports that his company, MESA Products, Inc. (Tulsa, Oklahoma), a provider of engineering, installation, and materials for CP systems for pipelines, distribution systems, aboveground tanks, underground tanks, refineries, and offshore environments, actively seeks experienced NACE-certified CP Technicians as well. May says MESA posted between 10 to 15 job openings per year during the last three years, generally for field technicians with CP certification and about five years of CP-related experience. MESA hires corrosion engineers too, he

explains, but to a lesser extent. During October the firm had positions open in Houston and Fort Worth, Texas, and in Florida.

Demand for CP personnel is strong in Alberta, Canada, says Zadery, who witnessed an industry-wide increase in the number of corrosion openings over the last three years, particularly for field technicians with five or more years of experience. At CIMARRON, anywhere from two to five positions, divided between technicians and engineers, open up each year.

An Employee's Market

Industry sources report that it's not easy to find experienced professionals to meet the swell in demand. In fact, it's fairly difficult, says Domingue. "Clients are becoming much more specific in the level of certification and experience they are requesting. Everyone—service companies and operators alike—is looking for the same type of person in terms of training and experience."

The pool of people looking for corrosion work is shrinking, says Wegener. The number of resumes posted per month on CorrosionJobs.com now has decreased by about 30% when compared to the number posted on the site two years ago.

The shortage of qualified corrosion professionals is an issue that concerns leaders in the industry. Several comment that it can take several months or longer to find a qualified applicant to fill a vacancy, depending on the level of experience the job opportunity requires. Even

then, companies report that finding candidates who possess the specified skill set is extremely challenging. At times some companies reduce the qualifications (i.e., from senior engineer to seasoned corrosion technician) when candidates don't have either the desired level of education or the years of CP experience. Other companies find they must fill positions with lower-level candidates and provide training.

"It's an employee's market," May says. "There are opportunities for people in this industry, whether they are coming in for the first time or changing their career."

In fact, May notes, demand is so great that once an employee receives some training and experience at a firm, that person is often recruited by another company in the industry. As a result, salaries soar unrealistically high and turnover is greater than in the past. Financial implications are much higher than they used to be, says Rankin, adding that it costs substantially more to hire the same person now than it did five years ago or even last year.

Consequently, May says, people fairly new to the industry that have any training at all could be pushed into jobs for which they may or may not be qualified. Adds Rankin, "New people are not getting the field training they should have and we are also losing the opportunity to act as mentors."

One factor contributing to the shortage of corrosion professionals is the loss of older, more experienced workers, says May. "During the last 10 years, our industry went through a phase of corporate restructuring, where downsizing resulted in a huge loss of highly capable talent," he explains. "Many good people retired and they weren't replaced. And now, that loss is impacting our industry. It's something we have to react to."

A similar situation is facing companies in Alberta, says Zadery, who anticipates that a large group of experienced professionals there will retire in about five years and create a gap in the number of people with 25 or more years of corrosion-related experience.

FIGURE 2

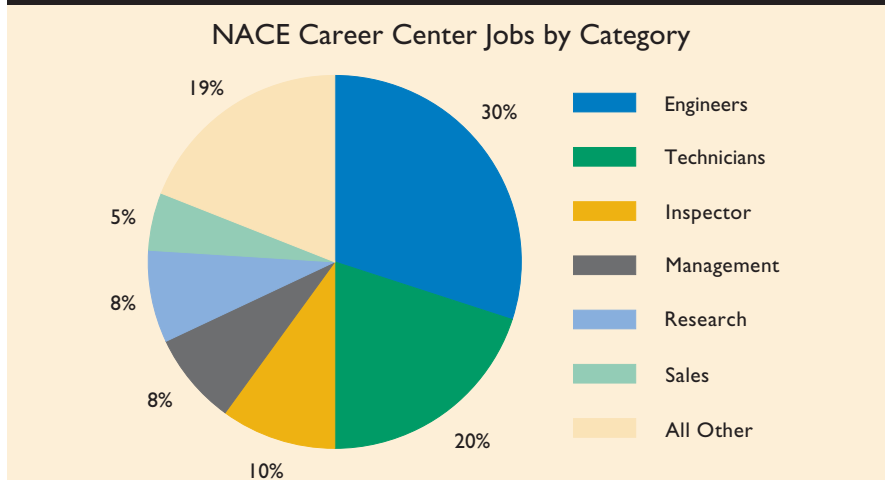
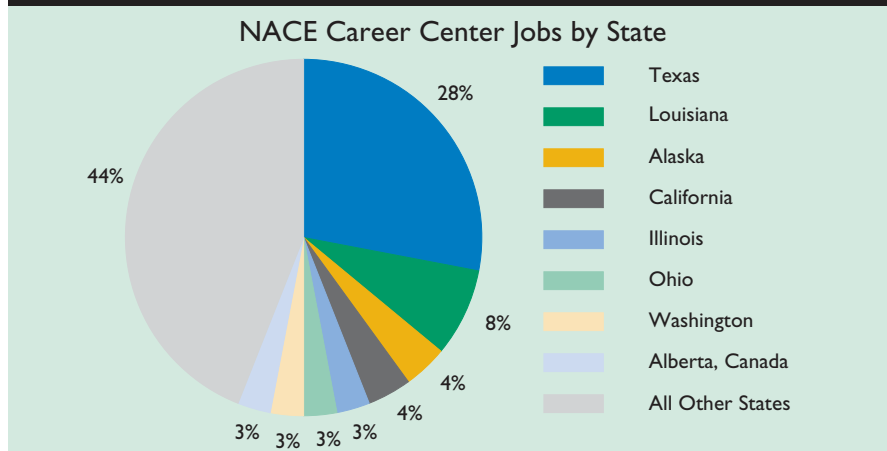


FIGURE 3



Another contributor, sources note, is the lack of formal corrosion curriculums at colleges and universities. Many students in engineering and other related curriculums aren't aware of the opportunities in the corrosion field. "There are no colleges that offer a four-year degree in cathodic protection," says Rankin. "Cathodic protection seems to be barely addressed in materials or metallurgy curriculums."

In Alberta, materials engineering students will study some corrosion, but mechanical, civil, and electrical engineering curriculums provide very little exposure to corrosion at all, Zadery adds. "Creating awareness of corrosion integrity as a science is a big hurdle. Most university and technical school students are not even aware of corrosion as a career path." Finding and retaining people is extremely challenging. People may work in corrosion for several years and then move on to something else. In today's market, there are many other industries and prospects competing for the students' interest.

New Strategies

In the past, people happened upon the corrosion field and made a career out of it. But now, sources say, innovative measures need to be taken in order to attract and keep new corrosion professionals. While posting jobs on Internet and company Web sites, attending industry functions, and getting involved on industry committees are still viable methods companies use to augment their recruiting efforts, people are also looking at long-term strategies to draw and retain more professionals to the corrosion industry.

Partnering with colleges and universities to create more corrosion-related curriculums is one approach the industry is taking. Currently, Kilgore College (Kilgore, Texas) is the only school that offers a two-year Associate of Applied Science degree in Corrosion Technology. The college also offers a two-semester program for either a CP certificate or an atmospheric corrosion certificate. According to Jerome Edinger, Kilgore's Corrosion Technology instructor, Kilgore's Corrosion Technology associate's degree program was initiated 27 years ago and has grown steadily since then, particularly in the last three to four years. Currently 70 students are enrolled in the program, which is one the highest enrollment numbers the program has experienced, he says. When Kilgore students complete the certificate or associate's degree program, NACE offers the students an opportunity to immediately sit for the NACE CP Level 1 examination at a special student rate. Those who graduate with an associate's degree in Corrosion Technology are eligible to apply for NACE Corrosion Technician certification.

The University of Akron (Akron, Ohio) is working with NACE, the NACE Foundation, and several industry partners, including Corpro and Carboline, as well as the Department of Defense, to develop a corrosion engineering curriculum and increase the opportunities for students to receive corrosion-specific college coursework. In response to industry inquiries, the university initiated a goal to develop and offer non-credit training courses as well as a Bachelor of Science degree in Corrosion Engineering in

order to reach a broad spectrum of students; and the university continues to coordinate internally the development of these degree programs. (See the article "University of Akron and Partners Lay Groundwork for New Degree Programs," April 2007 *MP*, p. 24.)

"There are a lot of students in engineering and other fields who aren't aware of the opportunities in the corrosion field," says Domingue. "The industry has a place for community college students and high school graduates as well." In Houston, Corpro is working with Cy-Fair College, which is looking to implement a corrosion program. Setting up internships and part-time employment opportunities for students is one avenue Corpro is exploring as it looks toward long-term recruitment.

Industry members in Calgary also collaborate with universities, comments Zadery, citing the group's success in working with the University of Calgary to develop a pipeline engineering curriculum with some corrosion content. He also emphasizes the need for industry to develop a career path in the corrosion industry and for companies to provide stepping stones for corrosion employees that lead to upward growth within their firm.

"Overall, corrosion is a small function of an energy company; other engineering disciplines traditionally have more opportunities to advance," Zadery explains. "For instance, out of 150 professionals at CIMARRON, 25 are corrosion professionals. On the pipeline operator side, only 30 out of 2,000 employees might be involved in corrosion integrity. We need to convince young people that there could be a career path for them in corrosion."

As the energy-related industry moves forward to meet the challenges it faces in meeting the demand for additional corrosion professionals, one trend appears clear. Industry leaders recognize that the upsurge in the corrosion integrity field make it a necessity to develop new strategies for finding, training, and keeping bright new talent in the industry. It's an exciting time to be a corrosion professional. **MP**