

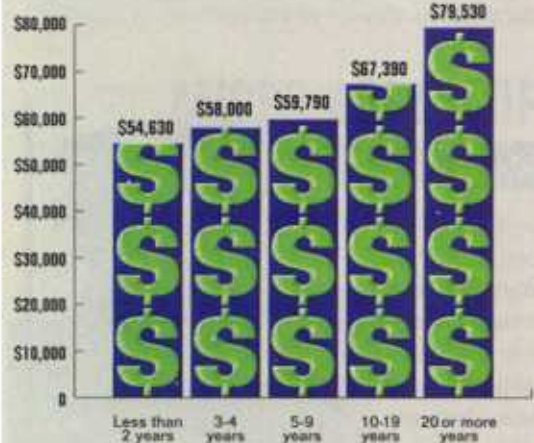
# Refining, Chemical Processing Industries

The average salary of U.S. corrosion professionals now is \$69,240, up 4.2% from last year's average of \$66,420, according to the second annual Corrosion Career Survey just completed by NACE International. More than 1,560 individuals—30% of



FIGURE 1

AVERAGE SALARY BY YEARS OF CORROSION EXPERIENCE



the 5,000 members surveyed—responded to the survey.

The 4.2% corrosion salary hike closely parallels the findings of the National Society of Professional Engineers' (NSPE) 1999 survey for all engineering professions. NSPE's median salary for all engineers increased 4.7%, from \$69,540 in 1998 to \$72,842 in 1999.

While the corrosion salary average—including those who are not engineers—lags slightly behind the NSPE aver-

age, corrosion pros who list engineering as their principle job function are slightly ahead of NSPE's median, with an average salary of \$73,770.

A dramatic finding of both the Corrosion Career Survey and NSPE's survey of all engineering disciplines is the impact of a professional engineer's (PE) license. In the NACE survey, those with a PE license have an average salary of \$81,990 compared to \$66,670 for those who do not. NSPE found this year's median salary for PE licensees to be \$81,000 compared to \$70,000 for those without the license. While other factors no doubt are involved, both sets of data indicate that a PE license contributes an additional \$10,000 in annual income at some stage in a corrosion career.

The survey reveals corrosion salaries largely are flat for those with 9 or fewer years of experience (Figure 1). Respondents with less than 2 years experience earn an average \$54,630 while those with 5-9 years of experience earn \$59,790,

*1999 U.S. Corrosion Career Survey*

JEFF LITTLETON, NACE PUBLICATIONS DIRECTOR

# Lead Corrosion

# Salary Increase



a difference of just 10% over 3-8 years. At an average annual increase of 4.2% (this year's finding), a 2-year corrosionist at the \$54,630 level should be at \$67,100 after 5 additional years of experience.

Other than job function, education level is the most significant income driver (Figure 2). On the low side, those who list high school as their highest education level earn \$55,110 per year on average. The average income steps up almost exactly in \$10,000 increments from high school to associate degree, to bachelors degree, and on to masters degree. On the high end, the 1999 survey found those with a masters degree earn \$83,300 on average. Those with a doctorate degree earn only slightly more, with an average \$86,450 income.

## Which Jobs Pay?

Survey respondents were asked to choose from among 15 primary job functions. Engineer (22%), technician (20%), management (17%), and sales (13%) were chosen most often and together accounted for almost 75% of all respondents (Figure 3).

Corrosion managers again report the highest income with an average salary of \$81,400, up 3.4% from last year's average. Other high-paying jobs include contractors and sales at \$78,000 and \$76,150, respectively. As mentioned above, corrosion engineers enjoy an average salary of \$73,770.

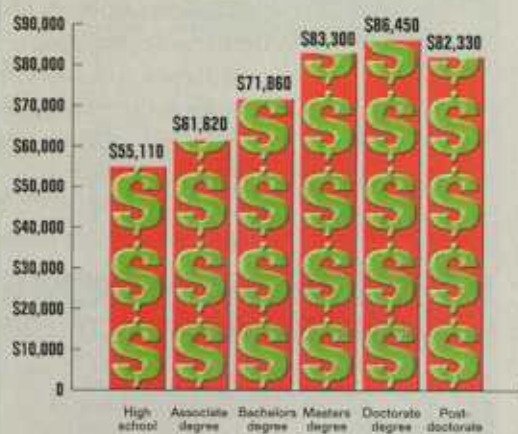
The lowest-paying jobs are technicians and technologists, with an average \$49,470 income. Other jobs on the low end of the pay spectrum include inspectors and those involved with maintenance, both hovering around the \$59,000 level.

## Which Industries Pay?

Average corrosion salaries for the chemical process and refining industries are both up around 10% over last year, and top the 1999 industry charts at \$84,000. In 1998, these two categories were ranked third and fourth behind metals/mining and oil and gas extraction (Figure 4).

FIGURE 2

AVERAGE SALARY BY EDUCATION LEVEL



**FIGURE 3****AVERAGE SALARY BY CORROSION JOB TYPE**

The third-highest-paying industry in this year's survey is oil and gas extraction, with an average income of \$79,470. Engineering income enjoyed a surprising spike this year, rising by 11% to \$78,530. That pushes engineering's rank up to fourth from eighth in 1998.

The lowest-paying industry in this year's survey is oil and gas pipelines and storage tanks. Corrosion professionals in that market earn an average \$55,240 annually, which is basically flat with last year's findings. Transportation and marine structures also are at the low end of the pay scale. Cathodic protection (CP) salaries were the lowest reported in the 1998 survey at \$53,840. However, CP workers have enjoyed a nice increase this year to \$61,470.

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**The Gender Gap?**

Though some would argue about whether gender is an appropriate issue for the Corrosion Career Survey, a question was added this year to determine if there are significant variations.

Fully 95% of those responding to the survey are male. The average salary for males and females is \$69,610 and \$61,040, respectively. Experience clearly was a factor in the difference. Male respon-

dents claimed an average 14 years of experience while their female colleagues claim just 10 years.

**Hang Out a Shingle**

As corporations strive to "right-size," corrosion personnel sometimes are considered a nonessential service that can be outsourced. Consequently, there is a fairly constant temptation for corrosion professionals to start their own consulting companies.

Despite that, just 11% of all respondents to this year's survey are

self-employed. That is down markedly from the 17% who claimed to be self-employed last year. A tightening labor market and robust economy are obvious drivers of this trend.

Interestingly, though the number of those self-employed declined significantly, the average salary for those who remain self-employed jumped nicely from \$70,300 in 1998 to \$78,460 in 1999. That 11% increase is one of the largest category increases in this year's survey.

The self-employed have been working in corrosion for more than 17 years on average compared to 13 years for those employed by others. They also have been NACE members for more than 16 years, 6 years longer than those working for others.

**U.S. Regional Salary Averages**

Together, the northeast and midwest areas of the U.S. host almost half of all those surveyed.

**How to Join the Six-Figure Club**

A surprising 13% of the 1,565 survey respondents claim a total compensation package exceeding \$100,000. What does it take to earn the big bucks?

First, consider starting your own shop. Fully 29% of those in the 6-figure bracket are self-employed compared to 11% for survey respondents overall.

Second, get that PE license. The 6-figure club members are twice as likely to have a PE license than survey respondents overall.

Third, transition into the coatings or dedicated engineering disciplines. Surprisingly, the coatings industry contributed the largest number of 6-figure breadwinners followed closely by engineering. The chemical processing and oil and gas industries also host a large number of 6-figure corrosion professionals.

Fourth, bite the bullet, learn to play office politics, and take the plunge into management. Of the 16 job functions listed on the survey, 33% of those earning \$100,000 or more claim management as their primary job function. Half of all high-income corrosionists claim either management or engineering.

Additionally, be patient. More than 70% report being involved with corrosion prevention and control for more than 20 years.

**FIGURE 4****AVERAGE SALARIES BY INDUSTRY**

The Gulf Coast is the third most popular region for corrosion pros, followed closely by the southeast and southwest states. The least-popular regions for NACE members, according to the survey, are the west and northwest areas. Together, they account for just 15% of respondents.

Those wishing to relocate to more lucrative corrosion markets should target the Gulf Coast area. NACE members there enjoy an average salary of \$78,170, up considerably from \$72,970 in 1998. The high-paying refining and chemical processing industries are drivers for the region's prosperity (Figure 5).

The few corrosionists located in the northwest area are enjoying a 17% average salary increase compared to last year's survey. They now have an average income of \$70,950. Folks in the southeast region are singing the blues after their collective salary did not change this year compared to last. All other regions were up slightly.

## Never Stop Learning

Fully 35% of those surveyed indicate they hold professional certifications other than a PE, and 77% report they have attended corrosion-related training over the past 10 years.

Not surprisingly, NACE certifications account for some 80% of those listed by respondents. Other popular sources of certifications include the American Welding Society, the American Petroleum Institute, and SSPC-The Coatings Society.

## Corrosion Vs Management

The 1999 survey asked which of five elements NACE members would change about their jobs if

## How the Survey Is Conducted

As in 1998, the 1999 Corrosion Career Survey was mailed to 5,000 U.S. members randomly selected from the NACE membership database. Postage-paid envelopes were provided to ensure response anonymity. Fully 1,630 survey responses were received prior to the survey deadline. Salary information was not provided for 65 of those responses, and they were omitted from the analysis, yielding a total database of 1,565 responses. Ironically, this is just five surveys more than were analyzed in January 1998.

The deadline for returning the surveys to NACE was November 5, 1999. In October 1999, NACE membership worldwide was 16,023 and U.S. membership was 11,736. Thus, the 1,565 usable responses represent 9.7% of the worldwide membership and 13.3% of the U.S. membership. These percentages far exceed commonly recommended requirements for statistical sampling.

given the opportunity (Figure 9). From among five choices, the most popular are more advancement opportunities and better job security.

In 1998, the second-most popular choice was improved corrosion control technologies. However, in 1999 that selection dropped to fourth behind advancement, job security, and a larger budget.

Not surprisingly, the average salary was the lowest among those who selected more advancement opportunities, and the highest among those who selected improved corrosion control technologies. Fully 14% of respondents chose to write

FIGURE 5

AVERAGE SALARIES BY U.S. REGION



FIGURE 6

AVERAGE SALARIES BY TENURE WITH CURRENT COMPANY



FIGURE 7

AVERAGE SALARIES BY HOURS WORKED



in a different job element they would like to change from those offered in the survey. More training and professional development was the item most commonly mentioned.

The survey results clearly revealed that corrosion professionals universally struggle with justifying the importance of corrosion control to facility owners (Figure 10). Attempting to define the corrosion professional's greatest challenge, most respondents indicate they do not have sufficient budgets to handle corrosion correctly; that corrosion prevention and control is an under-appreciated skill set; and that corrosion is, in the words of one respondent, "not even on management's radar screen."

Also mentioned repeatedly is the need to balance short-term and long-range goals related to corrosion prevention. Many respondents describe corrosion prevention as a long-range challenge amid short-term management goals. Some suggest that

corporate strategies suffer from a "not on my watch" mentality, involving managers unconcerned about current corrosion problems that will not impact operations until after they leave the company.

### Salaries in the New Millennium

Like all engineering disciplines, the future earning potential of corrosion professionals will be driven by everything from economic trends to government regulations. Other than the aging infrastructure and greater emphasis on life-cycle costing, there is little data to indicate whether corrosion compensation is going to lag or exceed other engineering disciplines.

Despite future uncertainties, NACE members working primarily in engineering enjoyed an average salary slightly higher than the average for all engineering disciplines in 1999. That combined with an average 4.2% increase is not a bad way to begin the new millennium. *MP*

FIGURE 10

#### CORROSION PROFESSIONAL'S GREATEST CHALLENGE

- 1 Convincing and educating management and end users of the importance of a long-range corrosion prevention program.
- 2 Getting sufficient corrosion control budgets to do the job the right way.
- 3 Communicating with upper management.
- 4 Keeping current with new technologies and how they can be applied.
- 5 Obtaining good data and interpreting it correctly.

FIGURE 8

#### AVERAGE SALARIES BY YEARS OF NACE MEMBERSHIP

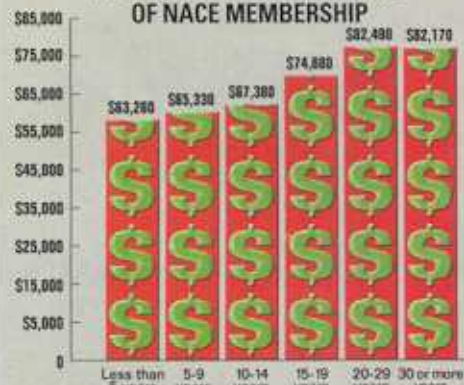
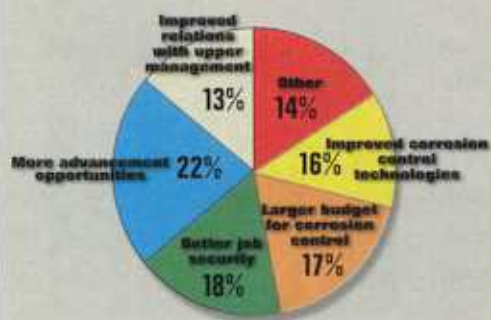


FIGURE 9

#### JOB CHANGE PRIORITIES



### Internet Salary Benchmarking Resources

www.nspe.org—National Society of Professional Engineers. Provides recommended salary ranges for eight levels of engineers. A comprehensive survey of all engineering disciplines can be ordered.

www.salariesreview.com/freedata/—Good site hosted by compensation consultants Baker, Thomsen Associates. Users enter state, city, and position data and get a salary profile.

www.ericri.com/doltrends/—Economic Research Institute site that generates salary profile based on user data.

www.wageweb.com—Provides benchmark salary data for 160 positions. Engineering is one of the major position categories.