

ESCO NEWS

OCCASIONAL NEWS AND INFORMATION FROM ESCO ENGINEERING

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SEASONS GREETINGS

The staff of ESCO wish all our valued customers, suppliers and associates a Happy Holiday Season and a Prosperous and Safe 1992.

Jane Bowen	Jan Sobota
Fred Hasler	Marg Stevens
Helmuth Pletz	Neil Stone
Mario Madieras	

ESCO WORKS

Esco does a wide range of work in a wide range of industries. Some recent customers include:

- Sidbec Dosco, Contrecoeur, Quebec
- o H. J. Heinz Co. of Canada, Leamington, Ontario
- Astro Metallurgical, Wooster, Ohio
- McLouth Steel Corp. Trenton, Michigan

Jobs completed in the last year include:

- o Copper electrowinning system
- o Operator training courses
- o Food line modifications and upgrades
- o Study of sulfuric acid regeneration system requirements
- o Troubleshooting fume exhaust system
- o Installation engineering for new strip pickle tank and fume exhaust system
- o Study of strip cooling using direct contact water

CONTROLLING ENGINEERING COSTS

In these hard economic times we all want to keep our expenses to a minimum. Here are some ways to keep your engineering costs down.

Call your engineer early - your consultant can be considering the overall requirements and help you avoid purchasing unnecessary equipment options or omitting needed features. Also the exercise of explaining the purpose of the project to the engineer can often result in conceptual improvements and cost savings.

Study alternatives - it is much cheaper to move equipment around on paper or on a computer screen than to change things in the field.

Outline study drawings can be quickly and cheaply created for review and to help operating personnel visualise how the new system will interact with existing equipment.

Allow realistic time for engineering - 'stampede' or 'rush-rush' jobs are usually expensive and error-prone. This is why:

- certified drawings and installation manuals for equipment are not available - assumptions need to be made based on catalogue data.
- many people working simultaneously to complete the job in a short time are less co-ordinated than fewer people working for a longer time.
- insufficient review time leads to drawing changes being needed after detailing is complete. The more detailed the drawings are when they are changed, the greater the likelihood of error.

Don't over-engineer - field fabricated piping and electrical layout drawings represent well over half the total drawing time, yet they are rarely followed accurately by tradesmen. This is particularly true in the case of retrofit work. Overdetailed drawings waste time in two ways - by taking time to generate, and then by taking time to revise 'as-built'.

THE VIEW FROM THE FIELD

Esco's field technician and design co-ordinator, Fred Hasler offers you these suggestions:

"The new kid on the block" always gets blamed for anything and everything that is not normal, even if he just sits at home doing his homework. Sound familiar? - well, similar situations exist almost every time a new processing system is commissioned in an existing industrial environment: if anything goes wrong either upstream or downstream of the new system (even if it happened before) the general consensus usually is: "well, I ain't surprised, that thar stuff that were installed down yonder just makes everything more complicated".

Just like with the new kid, nobody seems to bother to find out where he is and what he does, i.e.

hardly anyone up or downstream of the new system has been informed as to what it really does.

Stop confusion and uncertainty about new systems or processes: "I.E.T." (Inform, Explain and Train). In other words, tell them about the "new kid on the block".

COMPUTER AIDED DESIGN

The PC is ubiquitous in engineering offices these days, and ESCO's office is no exception. In addition to CAD workstations, word processing and accounting uses, we use our computers extensively for design purposes, like the FEA work which was discussed in the last issue.

Owing to the specialised nature of ESCO's work, most of our design and modelling programs were written in-house. Amongst the programs which we regularly use are:

- design of plate-type scrubbers
- design of packed scrubbers
- pressure drop, balancing and flow analysis for complex fume exhaust system
- pressure drop calculations for thixotropic fluids in piping, including laminar flow
- pickling and acid recovery material balance calculations for sulfuric acid systems
- complete material and heat balance for continuous HCl pickle lines

The big advantage of computer aided design is not accuracy - most of the basic methods are no more accurate than they were before computers were widely available. Using the computer relieves the engineer of the need to do tedious calculations, reduces computation errors, and, above all, allows a much wider range of parameters to be investigated in detail.

However, blind faith in computer calculations is unwise - the results must be carefully reviewed in the light of engineering common sense and experience.

PUBLICATIONS AVAILABLE

Esco has prepared and published many technical articles. Here are a few titles that may be of interest:

- Pickle line fume control with plate scrubbers (presented at 1991 AISE conference).
- 'Sieve tray design' (computer program)
- 'Determine vapour pressure of HCl at low concentrations and temperature'
- 'Cyclone efficiency determination' (computer program)

Copies of these are available on request - write, phone or fax.

Note: we are in the process of updating our ever-popular "Why's and How's of Sulfuric Acid Pickling", and will be preparing a comparison volume of HCl pickling. Look for information about these in future issues of ESCO News.

GOOD FOR A LAUGH

Now that the metric system is here, do you know the difference between a micrometer and a micrometer? The first measures the second, or is it the other way round?

Still, it's tough to remember all those metric prefixes; one way they will become familiar is by being used in everyday speech. Here are a few examples:

- attaboy = 10^{-18} boys
- picoboo = 10^{-12} boos
- nanogoat = 10^{-9} goats
- microphone = 10^{-6} phones
- milliner = 10^{-3} ners
- kilocure = 10^3 cures
- megaphone = 10^6 phones
- gigolo = 10^9 los
- terapin = 10^{12} pins
- exaggerate = 10^{18} ggerates

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Metal pickling, chemical process engineering, studies, equipment design, piping design, plant layout