

ESCO NEWS

OCCASIONAL NEWS AND INFORMATION FROM ESCO ENGINEERING

NO. 17, November 2001

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CONGRATULATIONS TO PETE

After several years of study, concurrent with his work for Esco, Pete Blokker, our chemical technologist has completed his engineering degree at the University of Windsor, and has been awarded a B.A.Sc. in Mechanical Engineering. Besides adding to the qualifications and skills that Esco can offer, it also puts Pete on the path to registration as a Professional Engineer.

BUYING ENGINEERING #6

We can't do it on our own!

Attractive though the thought may be to the owner's overburdened project manager, it is not feasible to pass a project on to the engineering consultant and say "Call me when it's ready!". This is especially the case for projects that are being done in an existing plant, or being retrofitted to an existing process. In these cases the engineering consultant cannot do it alone.

In an earlier article in this series (#4) we referred to the importance of the engineering consultant being part of the owner's team. However, the very characteristic that makes the engineering consultant valuable to the owner – the ability to go away and concentrate on the project in hand, without the day-to-day distraction of plant operations – also isolates the consultant from events in the plant that may affect the project.

So, we need your help to ensure that the project meets your expectations. There are many decisions that we cannot make for you - we can only present you with the information you need to make the decision, along with our recommendation. We need you to look at our layout drawings carefully, and to ensure you understand what is proposed, in order to avoid surprises or expensive and time-consuming last-minute changes that can delay the project completion.

Working together, we can have a successful project.

RECYCLING

One of the most efficient ways of reducing operating costs and effluent loads for a pickling operation is to recycle or re-use waste streams. Examples of this are acid regeneration plants, which recover the spent pickling acid for re-use, and use of low water consumption fume

scrubbers, so that the scrubber acid can be returned to the pickle tanks as make-up.

We are frequently asked whether it is possible to recycle the fume exhaust air after it has been scrubbed, or to reuse the rinse water, after it has been neutralized. The answer is generally, no.

If the fume exhaust air could be returned to the plant, then make-up air, and its associated heating cost, would be avoided. Unfortunately, the air leaving the scrubber is completely humidified, and is never completely free of acid, no matter how good the scrubber may be. Also, if, for some reason, the scrubber fails, acid fumes would be returned to the plant. The high humidity of the returned air would not only make the building very uncomfortable, but would also result in heavy acidic condensation on any cold surfaces, and consequent corrosion. So, never try and return air from the scrubber discharge to the plant.

The question of the re-use of rinse waste is not quite as clear cut. Usually, the effluent from a wastewater treatment plant contains enough dissolved salts to make it unusable for rinsing, which is generally the largest water user in the pickling operation, and it would definitely not be suitable as boiler feed water, without substantial pre-treatment. In most locations, the cost and inconvenience of the extra treatment needed to re-use the water exceeds any savings, but, in some locations where clean water is scarce or expensive, re-use of the neutralized waste water may be technically possible and economic.

There is a water re-use opportunity for companies that have cooling towers – use the cooling tower circuit blow-down as pickle line rinse water. The amount of water needed is usually much larger than the normal blowdown requirement, which may well substantially reduce, or even eliminate, the need for water treatment chemicals in the cooling tower circuit.

KEEPING CURRENT

Keeping current is a major concern, and a major cost for an engineering company. We are not talking about basic engineering knowledge, which is largely unchanged over the past 50 years, but rather about the three "C"s: Codes, Computers and Companies.

Codes and Regulations are proliferating. With the wider public use of the Internet has come the realization that information and knowledge are marketable. As a result, new, and frequently

useless codes are being published, and the older, established codes are increasing in price, and frequency of re-issue – the cost of these new issues, and the cost of the engineering time required to review the changes made, both add to engineering costs.

New Government Regulations are just as time consuming. A recent new Regulation that was 2 pages of legislation was followed by a 42 page 'explanatory document' which detailed what the Regulation required to be done!

It appears that common sense has at last prevailed in the Computer arena. In hardware, computers seem to have reached a speed which is more than adequate for most normal engineering and business applications, thereby reducing the expense and upheaval associated with hardware upgrades. The one area where there are real advances being made is color printers – how ironic that computers, the supposed precursor of the paperless office, are now the source of high quality hard copy!

The software vendors are realizing that they cannot sell endless upgrades that do not add any real functionality, but which, instead, create incompatibility between versions. Even AutoCAD seems to have got the message, as we understand that drawings made with the new version 2002 will be compatible with version 2000.

One of the most time-consuming tasks these days is keeping track of Companies. Long established names disappear overnight, to be replaced by bland, uninformative, trendy and mostly unmemorable new names, which then seem to change every year. Our literature files and catalogues, instead of lasting 5 to 10 years, are now outdated in a year or so – not for the information in them, but for the name or ownership of the company itself.

How many of these changes bring real benefits to businesses or individuals is not known – sometimes one gets the feeling that things are changed simply because not changing is somehow 'bad'. Whatever became of the old engineering adage 'If it ain't broke, don't fix it'?

CHEMICAL STORAGE

Pete Blokker writes:

An article about a town being convicted of hazardous material dumping because of vandalism recently caught my eye. Although the town had a 6' perimeter fence with barbed wire on top to stop people from entering, the chlorine building was unlocked. The vandals climbed over the fence and entered the unlocked

chlorine building releasing all of the chlorine into a nearby creek. If the building had been locked and the vandals had broken into the building the town would not have been charged because it would have taken all possible precautions. So remember wherever you are storing your hazardous materials whether they be supplies or waste, due care must be taken to prevent public access to these areas.

ESCO WEBSITE

Our home page address is:

<http://www.mnsi.net/~pas/esco.htm>

Our Website contains information about Esco services and capabilities, and also allows downloading of many Esco publications and spreadsheets.

Available for download are:

Paper on the use of plate scrubbers in pickling.

'Five lessons in pickling' – a discussion of some common pickling mistakes.

Previous Esco newsletters.

Emissions spreadsheet; calculates acid losses from open and closed pickle tanks.

Cyclone spreadsheet; sizes and calculates efficiency of gas cyclones.

We also have a number of hard-copy publications that are yours for the asking, at no cost:

'The Whys and Hows of sulfuric acid pickling'

'The Whys and Hows of hydrochloric acid pickling'

'The Whys and Hows of pickle line fume scrubbers'

'The Whys and Hows of waste water treatment for picklers'

You can request your copies by phone, fax or e-mail, but we need a postal address - these are printed documents, and cannot be e-mailed.

Our e-mail address is:

instone@mnsi.net

GOOD FOR A LAUGH

To the optimist, the glass is half full.

To the pessimist, the glass is half empty.

To the engineer, the glass is twice as big as it needs to be!

food and chemical process plant design • piping • metal pickling • fume and pollution control