ESCO NEWS

OCCASIONAL NEWS AND INFORMATION FROM ESCO ENGINEERING
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INTERNET NEWS

You can e-mail anyone at Esco using one of the following addresses:
jnstone@MNSi.net (Neil Stone)
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pas@MNSi.net (Paul Stone)
Mail is usually checked once a day, so if you need an urgent reply, use fax or phone.
We now have a home page at:
http://www.MNSi.net/~pas/esco.htm
This contains information about Esco, copies of this, and all previous newsletters, and the opportunity to download our open tank emissions spreadsheet. In addition, there is some humor, and quite a few links to sites of interest

FUME EXHAUST TIPS #6

Don't blame the scrubber!

A fume control system consists of many parts - the hoods, duct, fan, scrubber and stack - yet, all too often, if the system doesn't work well, the first thought is 'the scrubber is not working properly'.
There are two main problems that arise in fume control - escape of fumes into the plant, and high pollutant levels in the stack. The second of these clearly points to scrubber problems, and causes and solutions were discussed in the last newsletter (TIPS #5).
Escape of fumes into the plant is unlikely to be due to the scrubber. The cause of this problem is insufficient air flow at the hood, which can result from:

- fan performance deterioration.
- closed or corroded dampers.
- holes in the ducting or hoods.
- blockage of the duct, by crystals or accumulated liquid.
- hoods not installed properly.
- excessive fume generation in the process.

A pressure survey will show the cause of the problem. Measure the pressure at various points in the system from the hood outlets to the fan discharge - key locations are: hood outlets; before and after dampers; before and after the scrubber; before and after the fan. Provided the fan is developing the correct pressure, the trouble spot is indicated by an abnormally large pressure drop.

Next time - Maintenance

FREEBIES!

Coming soon:

Neil Stone, our chief engineer, is presenting a review paper on spent acid treatment and recovery processes for stainless steel pickle liquors at the Second International Symposium on Iron Control in Hydrometallurgy, to be held in Ottawa, Ontario, Oct 20-23, 1996. There will be a whole session about waste pickle acid treatment.
If you cannot be there, copies of the paper will be available after the Symposium.

NEW EQUIPMENT

We have invested in a new E-size color ink jet plotter (an EnCad CadJet 2) for hard copy output, and have been very satisfied with it, so far. Operation is simplicity itself, and with roll feed and automatic cutting, setup time is minimal.

It is, of course, very fast, and the output is quite acceptable, even if not quite as crisp as our old pen plotters. We find the colour a great help for highlighting changes and proposals, and expect that colour prints will be used in both tender and construction documents in future, to clarify the scope of work - especially when colour copiers become economical for widespread use. However, with the speed of the ink jet, making multiple color originals is quite feasible.

Despite gloomy prognostications in the reviews, we do not find the cost of supplies excessive - the ink cartridges last a long time (over 60 D size plots from our first black cartridge, and it's still going strong), and the paper is comparable in cost to the pen plotter.

We still have our pen plotters for backup, and in case we need a top-of-the line plot, but it looks as though they will be getting a well-deserved rest.

THE VIEW FROM THE FIELD

WAY OUT PROCESS CONTROL

As we get older, the younger, plugged into computer generations tend to look at us matured and experienced operators as "not quite with it" any more. They overlook practical experience and replace it with theory and explanations from Alpha 5 and other galactic sources. Because of this, we often find their control design very complicated and impractical.

Just because of the advance in measurement technology, which allows us now to measure just about everything from a simple pressure indication to the slightest motion of a hair on a mouse (and I don't mean a computer mouse) does not mean, that we have to **use** all that can be measured to control processes. For example, if we simply want to have a variable speed pump maintain a level in a tank, we don't really need to integrate the control with feed back of the RPM or the rate at which the level changes or the deflection on the discharge pipe or the flow rate of the liquid, unless we are doing research data gathering rather than process control.

Aside from the tremendous equipment cost involved in trying to measure and control fringe variables, operation of the process becomes quite complicated. Remember, for every measurement taken for control purposes, the operator needs to physically verify its correctness. After all, what good is all that information, if it is not true?

After having been involved for over 30 years in numerous different process operations (yes, even some with PLC controls), it still amazes me as to how much operators rely on the information on the screen without verification in the field. Sometimes, the most obvious discrepancies are ignored just because "the instrument can't be wrong". Bull! In most cases if something is inconsistent, it's the instrument giving the wrong information.

One day after retrofitting some components on a system involving a vacuum vessel that's been operated for 20 years or more we noticed during startup, that there was an indication of 20" vacuum on the vessel. However, the operation of the process looked suspiciously as if there was no vacuum at all. On checking with the operator, it appeared, that there is always a 20" vacuum, no matter what. Further inspection revealed, to the operators surprise, that the vessel was open to atmosphere because of a faulty valve positioner and one leg on the vacuum measurement instrument (DP cell) was plugged.

Now, had that process been instrumented to the hilt (or its galactic equivalent) chances are, that because of the potential overwhelming information on the screen, that particular problem would have been lost in cyberspace. It is absolutely true, that secondary backup instrumentation could have informed the operator of the faulty valve positioner, but try to put something like that into a maintenance budget!!

Let's face it, even with all the technological advances at our fingertips, we could all be more relaxed and a bit more "with it" by keeping controls simple and above all ***PRACTICAL*** and making sure, that the information we are seeing is real.

TANK EMISSIONS

Our spreadsheet for calculating vapor losses from pickling tanks into the exhaust air remains much in demand. If you need to do such calculations, to meet the new reporting requirements, call or fax us for a copy - it's free.

The spreadsheet will calculate HCl, nitric/HF and water losses for both open and closed tanks. Unfortunately, sulfuric acid losses are purely mechanical, and not possible to predict .

The spreadsheet is available for download from our website.

GOOD FOR A LAUGH

In a foreign country a priest, a lawyer and an engineer are to be guillotined. The priest puts his head on the block, they pull the rope, and nothing happens! The priest declares he has been saved by divine intervention, and must be innocent, so he's let go.
Next, the lawyer is put on the block, and once again, the machine does not work. The lawyer claims he can't be executed twice for the same crime, so he is let go. Now it's the engineer's turn. As his head is placed on the block he looks up at the mechanism and says "Hold on - I see your problem..."