

Over the last 15 years of a 40 year career in pumps, I've had the opportunity of training in excess of 20,000 engineers and technicians in pump reliability. This has provided me with the privilege of hearing the problems of that same number of pump users in the same period of time. From this experience I've learned 3 things;

1. Most of these problems are very practical.
2. Their solutions are also very practical.
3. Repetitive pump failure can be stopped.

To most of you, the first of these comes as no surprise, because you've been living with some very practical issues yourself.

- My pump isn't delivering enough water.
- It doesn't matter what seal I use, it fails every 3 months.
- We can't seem to stop the cavitation.

etc., etc., etc.

It's the second two that may offer some surprise. Particularly if you are in the kind of plant where repetitive pump failure is causing ongoing problems like lost production, expensive downtime, environmental difficulties and excessive maintenance costs..... but it really is true. Most pump problems have very practical solutions and the repetitive failure can be stopped.

So why do so many companies live with a pattern of repetitive pump failure? Well, in my experience, it usually means one of three things.

A Practical Approach to Pumping by Ross Mackay

- They don't *know how* to prevent their pump problems,
- they don't *think it's possible* to prevent their pump problems, or
- they don't *want* to prevent their pump problems.

We won't waste any breath on the last group... other than to say that it does exist. A millwright in one particular plant told me quite openly that pump failure was sending his kids through college by means of the overtime it gave him. Consequently, he wouldn't be trying too hard to prevent it!

Not knowing how to prevent pump failure is simply a matter of not having the necessary information. There's no shame in that, the only shame lies in staying that way.

The reality is that, in many plants, not having the information is normal, because nobody gave it to you. That's why so many people think that their problems are inevitable and can't be prevented. That is not true!

The problem is frequently, "on the job" training. Or, if we can be more honest with each other, "picking it up as you go along". What little training that does exist is usually limited, frequently inaccurate, or is provided by the pump manufacturers who generally focus on how to take the pumps apart and put them together again. This is usually referred to as "Hands-on" training, yet most millwrights can do this extremely well, simply because they've had to do it so frequently!

Hands-on training is very popular because everyone (including the maintenance department) just 'knows' that the pump failed again because maintenance did something wrong the last time they fixed it.

Or did they.....?

If that is the case, consider these 5 important questions.

1. Which two pump parts are the most technologically advanced?
2. Which two pump parts are not covered by a warranty?
3. Which two pump parts are not manufactured by the pump company?
4. Which two pump parts are the ones that fail most frequently?
5. Why?

While anyone who knows their way around a pump can answer the first four questions, it's the last one that causes some hesitation, and no wonder. The seals and bearings in most pumps act in a manner similar to the fuse in an electrical system. To a lesser degree, exactly the same thing will happen with packing. Just because the fuse fails, doesn't mean there is anything wrong with the fuse. In fact, most of us understand that the problem is almost always somewhere else. However, when a seal, packing or a bearing fails, instead of looking somewhere else for the problem, we simply replace the offending part, reassemble the pump, and start up again.

In other words, we reinstall the same problem, and can expect to deal with it again, and again, and again, throughout the life of the pump.

So how do we break the cycle of failure?

Well, one thing we do **not** do is to keep doing what we've been doing up to now. It's been said that the most prominent example of insanity is to keep doing what you've always done, but expect different results. That doesn't work in the pump business any more than it does anywhere else in life.

Nor do we try about 4 or 5 things at the same time. Because if any of them does work, we still don't know which one was effective and therefore, we can't expect to repeat the success elsewhere.

Simply put, we can try and figure out where the real problem is and fix it. This is frequently referred to with the grandiose title of Root Cause Analysis, but let's not get too fancy with either the words we use or the things we try.

The reality is (and I probably shouldn't admit this publicly as it could affect my consulting business) that this pump business is not really as complicated as many would have you believe. The only really difficult area is in designing the pump in the first place. Once you have it in your plant or mill, all you have to do is operate and maintain it within certain preset parameters and there's no problem.

If I'm ever accused of being too simplistic I will happily plead guilty, because for every pump problem you will ever experience, I believe there are only 6 possible solutions. So it can't be that difficult.

Or can it.....?

Ross Mackay specializes in helping companies reduce pump operating and maintenance costs by conducting training courses in person, and through a self-directed video program.

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