



Bottom line asset management

Industrial asset management may not sound exciting, but in many cases it's a painless way to significantly improve profits.

One key area for improvement is insulation, which is commonly undermanaged. A plant can reduce energy costs by millions of dollars by getting on top of its insulation.

Insulation savings add up

For example, a study by the National Insulation Association (NIA) shows that, at an average petroleum refinery, about 20 percent of its piping insulation is defective or missing, equating to a wasted energy cost of nearly \$300,000 a day. And that's before any carbon credits.

Even moderate energy users like food plants can see significant energy cost reductions — not to mention quality improvements — from more consistent process temperatures.

Why the missed opportunity? There are four pieces of the insulation picture, all requiring some skill and experience: inspection, maintenance, materials and application methods. Get any one wrong and you have wasted energy. Get several wrong, and the problem compounds in a hurry.

Capturing the benefits of better insulation starts with an NIA-certified appraiser. He or she will do an on-site assessment of piping, tanks and equipment and then feed data into specialized software for analysis. His or her report will not only summarize findings and provide specific recommendations but also include a budget with itemized costs and anticipated savings in operational expenses. Most importantly, the report will specify a date when the customer can expect to recoup the cost of any investment — commonly within one year. After that, savings go directly to the bottom line.

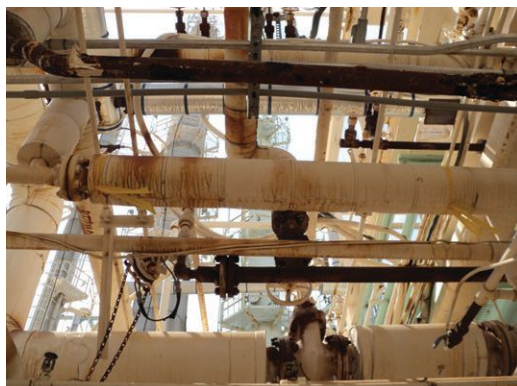
Note that a reputable appraiser typically will perform an energy appraisal for a nominal fee at most. In this case, more expensive does not equal better.



Energy costs can be reduced by millions of dollars by improving insulation.

Controlling corrosion

Another often-missed opportunity for expense reduction is corrosion control. Poorly timed corrosion mitigation can cost millions of dollars — both for the repair work and, sometimes more significantly, due to lost production.



The amount of corrosion visible prior to inspection.



Significantly more corrosion was found during inspection.

According to a 2016 study by NACE (formerly the National Association of Corrosion Engineers), corrosion costs U.S. industry more than \$300 billion a year. Globally, the estimated cost is \$1.4 trillion. The NACE study notes that corrosion prevention best practices can reduce corrosion costs by 15-35 percent. In other words, if U.S. industry paid better attention to systematic maintenance planning, the savings could approach \$100 billion a year.

The good news is haphazard corrosion abatement and unplanned insulation repair never have to happen.

Asset management systems

A good asset integrity management system can save hundreds of thousands of dollars by providing a comprehensive, dynamic view of ongoing maintenance needs, allowing for a well-planned, efficient program over a multiyear time span. What does that systematic approach look like?

A good asset management system uses data-driven predictive modeling. It should start with an inspection by professionals with experience dealing with corrosion under insulation (CUI) and corrosion under fireproofing (CUF). Such a plan must factor

in known stressors like temperature variation inherent in the industrial processes, the particular materials in use and weather.

With these inputs, the asset management system can model equipment degradation curves, meaning planners can fast-forward to age various assets and calculate likely outcomes based on different inputs. So for any given point in the future, the manager can test-drive multiple scenarios.

Expertise is critical to an effective asset management program, first when it comes to inspection, and also when it comes to maintenance techniques and materials. For example, the plant manager who assumes an area needs blasting and painting every 10-15 years may get good news from a knowledgeable industrial services provider and find the surface in question can last for 30 or 40 years with just routine spot repair and overcoating by using certain protective coating systems, according to Blake Young, vice president of MobleySafway.

Advancements in coatings and linings

Materials and technology have made great advances in recent years. So with the array of coatings and insulation products available today — which is larger and more advanced than ever — detailed, up-to-date knowledge is essential.

There are numerous new products on the market, even when compared to just three years ago. Simply using whatever products were used the last time means you're missing opportunities for cost savings.

For example, for bulk storage tanks, the old standard practice for coatings involved applying three coats, with a total curing time of up to two weeks. Technological advances in the chemistry of such coatings have created a product that can be applied in one coat and can cure in as little as three days, greatly saving labor and tank downtime.

Likewise, today we have technology that allows for high-solids epoxy coatings and tank linings to be sprayed onto interior surfaces in the existing plant environment using computerized automated systems, according to Derrin Dalton, president of Dalco, a Canadian company that specializes in industrial plant corrosion prevention and remediation along with access, insulation and coatings services. In the past, in an effort to delay downtime and the cost of replacement, plant managers would be

tempted to keep aging infrastructure in use as long as possible and, in so doing, risk bigger problems. With the technology we have now, there's no reason to take chances like that. Today we can keep the existing assets in great shape so the plant runs efficiently and safely, and preserve the existing infrastructure for decades.

CUI solutions

The bane of many plant managers is CUI, which often occurs when water is absorbed by or collected in insulation over piping or other equipment. CUI is common in refineries and process plants that operate at various temperatures, and it's a growing area of concern given the large number of facilities that are more than 40 years old.

When it comes to selecting the types of materials used for insulation, there are new options that didn't exist just a few years ago. For example, in the past, high-temperature piping systems were insulated with a calcium-silicate insulation covered with metal jacketing. Industrial service providers now understand how some of these arrangements can trap moisture and lead to corrosion. So today, a new material incorporates tiny ceramic beads, creating a coating that is durable, cool to the touch and much less likely to promote corrosion.

In planning, it's important to realize the major factors in CUI and CUF are interrelated. So the key factors — insulation selection, equipment design, protective paints and coatings, weather barriers and maintenance practices — are all parts of the story and have an effect on each other. For example, some insulations leave the system less sensitive to defects in weatherproofing or paint films because the insulations are nonabsorbent and chemically nonreactive.

Ask your multiservice partner to develop a comprehensive long-term plan that incorporates all areas where coatings and insulation need ongoing inspection and/or have a fixed life span. This is another example of how an asset management plan will pay for itself over time because refurbishment work can be layered over a period of years and all assets can be used to their fullest advantage.

You can avoid a budget pinch, get the longest possible life span out of your equipment and coatings, and greatly reduce the risk of downtime surprises or safety problems. With a good plan, a facility can save millions of dollars in expenses.

For more information, visit www.safwaygroup.com or call (800) 558-4772. ●