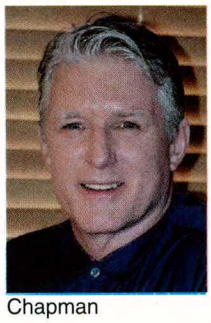
OIL/GAS OPERATORS: Managing Risks When Energy Prices are Down


Ames


Chapman

By **Mike Ames** and **Cal Chapman,** Chapman Engineering, Boerne, TX

Today let's imagine that we are a company producing oil and gas in the Eagle Ford Shale, the Permian Basin, and the Denver-Julesburg Basin in Colorado. We own and operate well pads, pipelines flowing from wells to facilities treating those flows, and bigger pipelines which take our products to sales points and "ring the cash register."

What has happened in the past 10 months? Product prices have declined precipitously, our share price is down, and we've "pulled the horns in" financially in a number of ways. Times are tough for our imaginary company. Operating our for-profit business has a lot of potentially positive outcomes. It can provide goods and/or services for the customer base, employ people, and generate income for owners and shareholders.

At the same time every business has to manage risks. These risks include taking care of assets – or possibly ignoring their care and maintenance when times are bad. When the business is an oil/gas production operator or a company shipping oil and gas through transmission pipelines, managing risk in smart and cost-effective ways should always be high on the priority list.

Falling Prices and Rising Risks

Back to what has happened recently in our scenario: Our oil and gas production company may be worth less money now, with lower commodity prices, lower revenues and reduced profits. What if something bad happens? That event and its consequences represent a larger risk to our company in these lower-price, lower-profit times. So, taking good care of our assets is more important — not less — compared to times when we enjoyed higher oil and gas prices.

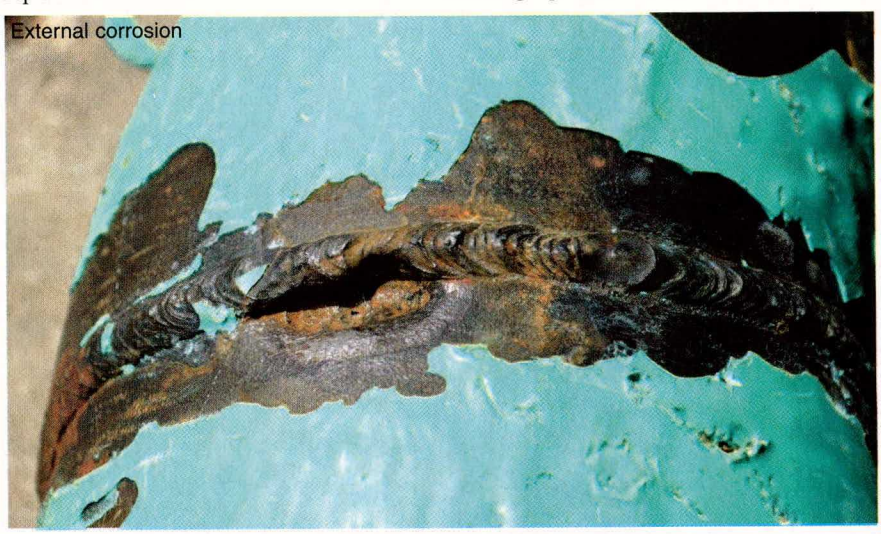
Maintenance is too important to eliminate. Remember the old ad on TV about oil changes that said, "Pay me now or pay me later?" That wisdom certainly applies to oil and gas production companies just as much as it does to cars.

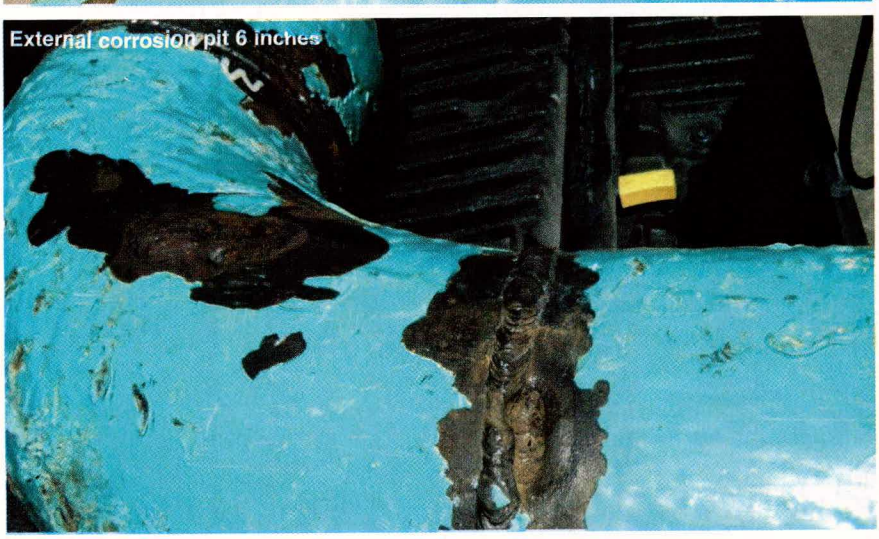
One of the big-risk areas for these companies in our scenario is corrosion control. Expensive assets get built and put into use — pipelines, big bulk storage tanks and processing facilities. These assets need regular testing to show good control of internal and external corrosion processes.

Proper maintenance means pipeline rights-of-way get mowed and maintained, and that accurate pipeline locating is still done when 811 pipe location requests go out for excavation along those paths. The pipeline markers or "witness posts" need to be maintained, painted, repaired and/or replaced over time.

Accidents Can Lead to Corrosion

The single biggest risk to pipelines is having them hit accidentally by people who are digging without permits, or by fields plowed deeper than usual, or even by a knowledgeable contractor who is having a bad day. This is referred to as third-party damage. If damage happens and is covered up, the pipeline often rusts through at that damaged area, causing a product leak or worse.


External corrosion


External corrosion pit 6 inches

Then there is external corrosion. To combat external corrosion risks, a good external coating is essential. In addition, a cathodic protection system complements the protective coatings on each structure. Regular testing needs to be done continually to ensure both coatings and cathodic protection are doing their jobs over time.

Regulations often require all this work, but the best reasons for these protections are to keep the structure's integrity healthy, and to keep the product on the inside of the structure.

Fighting Corrosion on the Inside

There are other corrosion threats to deal with as well. Pipelines and tanks don't just corrode on the outside. They can also be damaged by corrosion occurring on the inside.

This internal corrosion risk is driven by several issues. Water is one of these issues. Whether as a tiny amount of the overall volume or as a larger fraction, water is produced from oil and gas wells.

We know water is never good for carbon steel. And whenever water shows up, bacteria and other microbes come along for the ride and stay alive under just about any conditions. When food and water are available they thrive. Unfortunately, many of these bugs cause rapid pipe damage that must be controlled.

Some oil and gas production also includes a toxic and acidic chemical called hydrogen sulfide. This chemical mixes with water to make sulfuric acid and other nasties.

Oil and gas wells can also produce paraffin. When you hear the term paraffin, think of candle wax — it sticks to most surfaces and once there pretty much hates to let go.

Even worse is when paraffin rides over a puddle of water in the bottom of a pipe and traps the water in that local area. The bacteria and other microbes in the water manage to get into just about every nook and cranny of every pipe, tank, or vessel.

These bacteria especially love water pools and will grow and multiply in them. As they multiply, they make waste products which are usually very acidic. Now we have multiple corrosion mechanisms making steel into rust. The areas of covered water pools cause especially rapid corrosion that must be controlled.

Fighting internal corrosion in pipelines requires a good maintenance pigging program as well as chemical treatments.

Prevention is Key

In the worst-case scenario, what if a pipeline ruptures when oil prices are low and revenues are down? This one event might destroy the company. The cost of that event can be massive. And the company's image can be devastated. Investors may choose to sell their shares. All of this, combined, might be too much for some companies to survive.

Will insurance help? What costs will the company have to cover because insurance won't? If the company survives this incident, what will be the impact on insurance costs going forward?

Then there's the regulatory arena. What about fines or damages that may be assessed? These issues can add substantial costs that may push the company beyond its ability to recover.

These are real-world scenarios. And they can, for the most part, be avoided if a comprehensive corrosion-control program is put in place.

Dealing with Economic Realities

More than likely, our imaginary company's net worth is smaller than it was before the price of oil and gas dropped drastically. But the cost of a disaster hasn't fallen. Nor has the impact that such an event can have in the form of bad publicity.

Managing risk is more important when a company is worth less money and has fewer resources. A negative event, like a pipeline leak, fire or explosion costs the company a

larger portion of its total value when energy prices are low.

So, it's clear that managing risk and performing the tasks that protect pipelines, tanks and facilities from corrosion and third-party damage is even more vital in today's economy. And of course, taking these steps helps protect company employees and the general public.

In short, management of risk protects the company's value while also protecting people.

Bottom line: It's good business to pay for preventive maintenance, corrosion control and risk management on expensive infrastructure and assets that should have long service lives.

There really is no other choice. It's bad business to let assets suffer corrosion, be reduced in strength and integrity and become higher risk to operate – especially when the company has fewer reserves to use should a leak, fire, explosion or other disaster occur.

A prudent company that expects to survive and thrive for the long haul will manage its risks well even when energy prices are down. ***P&GJ***

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