

# APEX

## QUARTERLY

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### IN THIS ISSUE:

**DON'T WAIT TO CLEAN YOUR BOILERS BEFORE THE COLD - USE *RYDLYME*!**

***RYDLYME* CLEANS A MAIN TURBINE CONDENSER BACK TO OEM SPECS!**

***FOUL TERRITORY: URANUS* SMELLS LIKE WHAT?!**



**NEWS ON SAFE  
CHEMICAL SOLUTIONS  
FROM APEX ENGINEERING  
PRODUCTS CORPORATION**

# DON'T WAIT TO CLEAN OUT YOUR BOILER

**It's not too early to start thinking about how you are going to stay warm this winter.**

Like most of us, it's hard to believe that September is almost over and fall is here. It won't be too long until boilers will be called upon again to keep us nice and warm.

Boilers represent the heart of many institutions including: airports, factories, food companies, industry, hospitals, hotels, housing authorities, medical centers, office buildings, power utilities, schools, shopping malls, and other locations where hot water or steam is an essential part of the operation.

Scale is the accumulation of minerals such as calcium and magnesium on the water side of boiler heating surfaces. When boiler water turns to steam, residual minerals are left in the boiler. These minerals then settle out of the boiler water and form scale on the boiler heating surfaces. If the water delivered to the boiler contains even small amounts of scale-forming materials, the internal heating surfaces of the boilers can soon become coated with scale, leading to overheating, increased fuel consumption and subsequent tube failures. Even light or spotty scale deposition can be the foundation for hot spots, cracking, and distortion. For this reason, regularly cleaning the interior of steam generator and hot water systems is imperative.

Boiler maintenance is crucial to the continued efficient operation of your facility. One component to your boilers

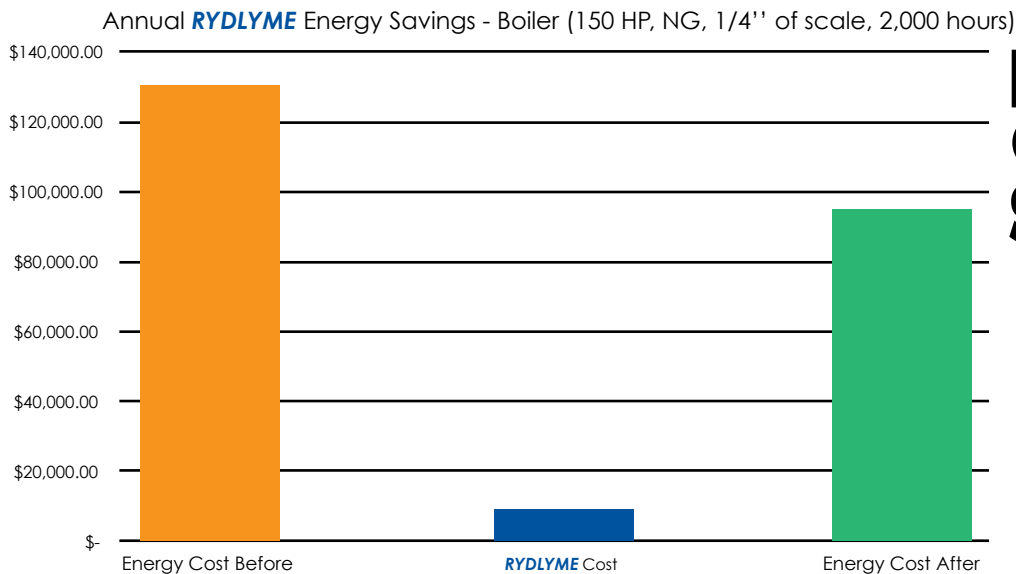
preventive maintenance program should be an annual cleaning to remove mineral scales that have accumulated within the boiler. These deposits inhibit heat exchange and cause the boiler to lose heat transfer, thus efficiency.

**FOR INSTANCE, SCALE THAT IS ONLY 3/16" THICK WILL CAUSE THE BOILER TO USE 27% MORE FUEL!**

A common unknown fact is that boiler tube failures account for the majority of a power plant's forced outages. This, all because the boiler may be suffering from inadequate heat transfer. Water scale deposited in steam boilers is usually harder and denser than deposits found in hot water boilers. This is due primarily to the temperatures involved. But even



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**NET SAVINGS OF OVER \$10,000!**

the smallest amount of boiler scale deposits hamper good heating efficiency. These mineral deposits may occur due to poor blow down and/or poor boiler treatment practices. Mineral deposits develop due to:

- Operating hours
- Feed water hardness
- Boiler treatment methods
- Operating temperatures
- Blow down techniques/procedures
- Feed water control fluctuations

During this winter season, make sure your boilers are operating efficiently to save money and significantly reduce the risk of costly repairs at a critical period.

### Factors To Consider Before Boiler Cleaning

- Type and design of boiler; low temperature hot water, high temperature hot water, low pressure steam or high pressure steam?
- Size of boiler can be obtained from the name plate or other documentation
- What is boiler used for? Heating or process (heat exchanger)?
- Age of boiler?
- The characteristics of the deposits and deposit analysis.
- Thickness of deposit; thickest area, thinnest area, average?
- Date last cleaned, if ever?
- Has any boiler feed water treatment been used?
- Boiler history?
- What is the boiler's water capacity?
- Compatibility of the cleaning solvent with the metallurgy of the system.
- Ease of the cleaning application.
- Method of spent solvent disposal.
- Cost of cleaning method.
- Any tubes or sections leaking now? If so, they should be plugged before cleaning.

## The RYDLYME Advantage

*As much as 12x faster & dissolves 50% more than other descalers!*

**RYDLYME** significantly outperforms traditional mechanical cleaning methods (e.g. brushing, rodding, hydroblasting) when it comes to speed, effectiveness and efficiency. But did you know **RYDLYME** also outperforms other chemical descalers not only in safety, but also speed and effectiveness?

In laboratory tests, **RYDLYME** was as much as 12x FASTER and dissolved as much as 50% MORE than other chemical descalers! Also, **RYDLYME** offers a cost-savings as the product is so concentrated that only a percentage of the product is needed in most applications. A huge difference from some descalers that require as much as 100% concentration! Not to mention the ease of disposal!

## RYDLYME goes into the boiler room

A 1,000-gallon boiler at a plant that processes feed ingredients for animals was experiencing overheating and significantly reduced performance due to excessive water scale. The customer wanted a solution that was not only effective at getting rid of the scale, but also fast and safe. **RYDLYME** was brought in to tackle the scale safely and quickly.

### Solution

- 440 gallons of **RYDLYME** circulated for 6 hours (solution was pumped into the lowest drain valve of the boiler and out the top most pressure relief valve)

### Results

- After circulation and thorough water flush, the entire boiler was free of scale and returned to peak operating efficiency.
- The customer stated, "Outstanding! The boiler looked awesome."
- When asked about the difficulty level of doing this cleaning, the customer quickly stated, "**RYDLYME** is the easiest product I've ever used!"

### MAINTENANCE TIP

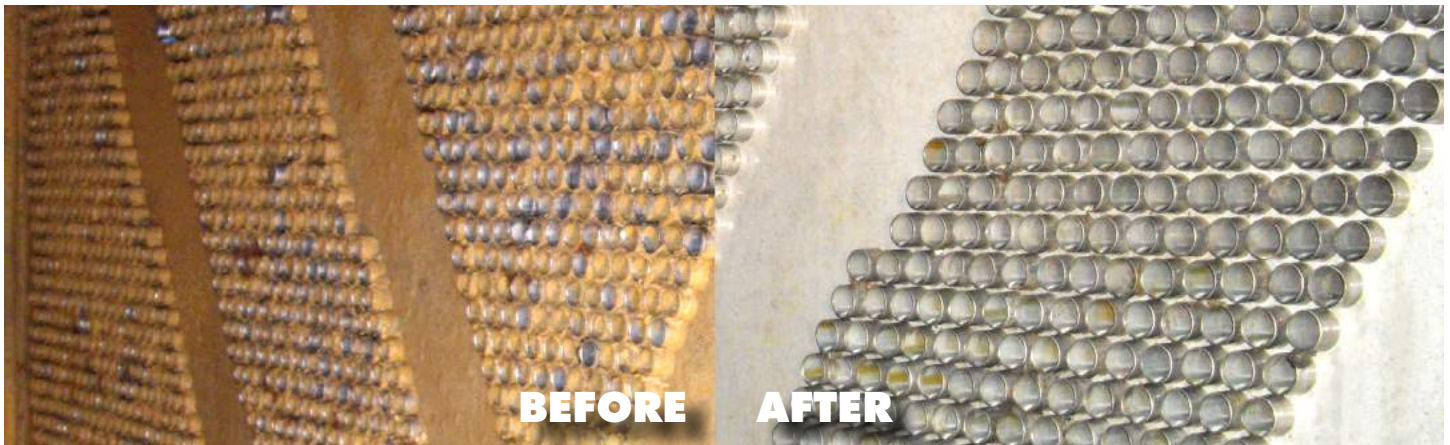
Some boilers can take a great deal of abuse and inattention and still function at competent levels. They may even have hinged doors to easily expose the tubes for inspection and cleaning. Regardless of the type and design of your boiler, the deposits should be monitored by visual inspection, tube sampling, or other methods.

## MAIN TURBINE CONDENSER CLEANING

The key to low cost power plant operation is maintaining clean, leak-free condenser tubes. Fouled condenser tubes have the greatest effect on operating efficiency which translates to a significant economic impact on plant operation. The reduced heat transfer from fouled tubes results in higher backpressure in the condenser and reduced turbine efficiency. This will increase fuel consumption and even reduce the power generation capacity of the plant.

A Florida combined cycle power plant was experiencing low heat transfer and overall inefficiency in their main turbine condenser. The backpressure had increased significantly since their last mechanical cleaning indicating a high amount of scale accumulation in the condenser tubes. This large main turbine condenser consisted of 16,424 stainless steel tubes with a volume of 31,350 gallons, the water boxes, with a volume of 11,200 gallons, equate to a total volume of 42,550 gallons. The condenser was set up for circulation by incorporating a 4" centrifugal pump to move the **RYDLYME** solution into the condenser and back to a vented 21,000 gallon Baker tank. They initially elected to clean half of the condenser with **RYDLYME** and the other half by feeding in 4,500 gallon of sulfuric acid to evaluate which method would be better in future cleanings

A total of 6,930 gallons of **RYDLYME** was used to realize a 32% solution that was circulated for 24 hours through half of the main turbine condenser.



### CHALLENGE

Significantly reduced heat transfer in the tubes of their main condenser due to heavy scale buildup resulting in reduced overall power plant efficiency.

### SOLUTION

Circulate 6,930 gallons (21 totes) of **RYDLYME** through half of the main condenser via a 4" centrifugal pump for 24 hours.

### RESULTS

**RYDLYME** completely removed the scale from the condenser tubes returning it to its designed efficiency. **RYDLYME** was the clear winner in the comparison as the sulfuric acid was deemed to "have little or no effect" in removing the scale from the condenser tubes. Additionally, it was observed that, not only was **RYDLYME** significantly faster than previous mechanical or chemical methods, it was much safer for their personnel.

# RYDLYME HITS THE WATER

Apex Engineering Products Corporation would like to congratulate our own Vice President of Operations, Kevin Ostermeier, on successfully entering the Guinness Book of World Records for the largest pyramid of water skiers! This impressive feat was accomplished by pulling 80 people behind a boat.

Our own Marine division ([www.RydlymeMarine.com](http://www.RydlymeMarine.com)) was an official sponsor of the water ski team, The Rock Aqua Jays, who were a positive force behind this achievement. Apex Engineering Products helped decorate the team's floating **RYDLYME** Ramp!

Photo on the right: In order of appearance - Kevin Ostermeier receiving the Sportsmanship Award. Eric J. Ostermeier receiving the support award!



## FOUL TERRITORY

A whimsical concoction of information in the world of scale, grease, odors and more.

Oh boy - who would have thought? This just in - Uranus smells like rotten eggs. Uranus' upper clouds are made of hydrogen sulfide — the same molecule that gives rotten eggs their noxious odor.

Using a spectrograph on the Gemini North telescope in Hawaii, a scientist and his colleagues detected the chemical fingerprint of hydrogen sulfide at the top of the planet's clouds, the team reports April 23, 2018 in Nature Astronomy.

That wasn't a complete surprise: Observations from the 1990s showed hints of hydrogen sulfide lurking deeper in Uranus' atmosphere. But the gas hadn't been conclusively detected before.

The clouds aren't just smelly — they can help nail down details of the early solar system. Uranus' hydrogen sulfide clouds set it apart from the gas giant planets, Jupiter and Saturn, whose cloud tops are mostly ammonia.



Apex Engineering Products has encountered many smelly situations over the years - that's why **RYDALL OE** was born. This biodegradable odor eliminator has proven time and time again that it can tackle the worst odors.

What's next for **RYDALL OE**? Possibly traveling through space to rid the odor of Uranus!

story via <https://www.sciencenews.org/>

## DESCALER &amp; PUMPING SYSTEMS



**RYDLYME** biodegradable descaler is uniquely formulated to dissolve the toughest water scale, lime scale, mud and rust deposits from virtually any water-operated equipment. **NSF A3 and ANSI 60 certified.**



**RYDLYME Pumping Systems** are specifically designed to circulate **RYDLYME** through a vast array of equipment and systems to keep your facility at peak operating condition.

## CLEANERS &amp; DEGREASERS



**RYDALL CC Coil Cleaner** is a biodegradable, concentrated solution that is safe for indoor and outdoor cleaning of air exposed surfaces on HVAC/R equipment. Dilutable and capable of being applied via foaming applicator. **NSF A3 certified.**



**RYDALL MP Multi Purpose Degreaser** is a biodegradable, versatile cleaner that quickly and safely removes oil, grease, grime and other pollutants from wettable surfaces and components. **NSF A1 certified.**



**RYDALL HD Heavy Duty Degreaser** is a biodegradable, citrus based, heavy-duty industrial degreaser. Used specifically on all carbon based derivatives that are found on the oil and/or process sides of your critical equipment or systems.



**RYDALL VP Specialized Degreaser** is a biodegradable, pH neutral degreaser specifically designed to safely and quickly clean and degas refinery process equipment. It can be applied in circulation or vapor phase applications.



**RYDALL DC Deodorizing Cleaner** is a biodegradable, ultra-concentrated cleaner designed to be used generally in janitorial applications such as floor, bathroom and window cleaning.

## ODOR CONTROL &amp; WATER TREATMENT



**RYDALL OE Odor Eliminator** is a unique, environmentally beneficial additive that is applied to landfills, compost or other organic odors. Naturally enhances methane release and production. Contains no masking agents, essential oils or fragrances.



**RYDALL WO Water Optimizer** is an environmentally beneficial additive that naturally reduces and prevents the formation of  $H_2S$ , COD, BOD, FOG, TDS and TSS. Thereby reducing corrosion and discharge penalties while increasing production.

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For 75 years, Apex Engineering Products has been formulating and manufacturing safe and biodegradable specialty cleaning chemicals for a diverse range of applications around the world. From our **RYDLYME** biodegradable descaler to our versatile **RYDALL** line of cleaners and degreasers, our products will decrease downtime and increase efficiency.

We are a fourth-generation, family-owned company renowned not only for our biodegradable line of products, but also our in-depth and exceptional customer support. With decades of knowledge and experience in a wide array of applications, our knowledgeable technicians will work closely with you to determine the best solution for your facility's unique challenges. To further minimize your downtime, virtually all orders are shipped out within 24 hours.

Apex Engineering Products also takes great pride in being an ISO 9001 Certified Company providing the highest level of support and quality of products to our customers....**another formula that hasn't changed in over 75 years!**