Prevent Sludge From Building Up Your Costs

Problem

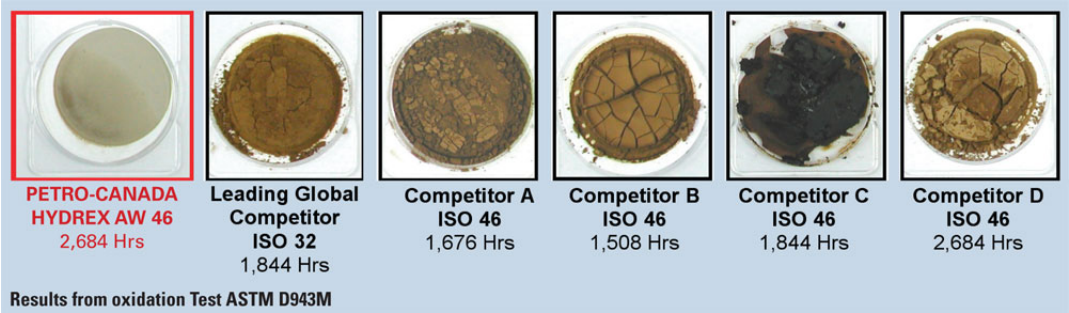
The heavy-duty hydraulic systems in today's industrial plants endure some of the toughest operating conditions. They run under extreme pressures, at increasing speeds and are working harder than ever before. Now, in light of the trend toward smaller reservoirs, even more stress is being put on this equipment.

These factors can present many challenges—*one of the most important of which is sludge buildup*. With the smaller systems now in operation, air and heat are not able to escape as easily as they are with larger reservoirs. Water may not separate as effectively. Contaminants may accumulate faster. As the rate of oxidation rises, so does the risk of harmful sludge buildup. Even with a good filtering system, excessive sludge can plug filters, which increases equipment wear and can seriously damage the hydraulic pump.

Sludge buildup can greatly affect the performance of your systems. How does it affect your costs? As equipment runs harder, fluid can break down faster, risking total system failure and costly downtime. Failure to evaluate the hydraulic fluid that protects your hydraulic systems can resultin the use of

low-quality fluids withshort service lives that can requirefrequent top-ups or change-outs (andmay not properly benefit the machinesin the area of sludge protection orfurther performance demands.) Theresulting downtime and repairs can increase maintenance costs, slow production and ultimately reduce your profit margins. Not to mention, the cost of an unplanned line stoppage or machine failure can easily absorb profit and damage productivity—*costing you*
much more in the long run.

The bottom line? When your company's productivity and operations rest on the performance of their hydraulic systems, you can't afford to ignore quality. Using the right high-performance hydraulic fluid will help to ensure optimal productivity while saving you money.



Click to enlarge.

Solution

Specifically designed for heavy-duty hydraulic systems that operate in industrial plants, Petro-Canada's HYDREX hydraulic fluid is formulated using crystal-clear 99.9%-pure base oils—*some of the purest in the world.* By removing the impurities that can hinder the performance of conventional hydraulic oils, HYDREX lasts longer. Petro-Canada then blends in specially selected additives to produce the finished product. For optimal sludge protection, Petro-Canada's HYDREX AW 46 has been shown to produce signifi cantly less sludge than several competitor products, even at longer test hours. In a standard industry test (ASTM D943M), a high temperature (203 F/95 C), a 99.5% oxygen fl ow, 20% water and copper and steel catalysts were used to accelerate oxidation to determine the rate of acidity buildup in various hydraulic fluids. When the test fluids were filtered, the sludge was examined, and the competitor samples indicated accelerated oxidation and degradation (see the accompanying chart). HYDREX also delivers advanced anti-wear protection and improved rust and corrosion prevention for extended equipment life. Its excellent thermal stability enables extended drain

intervals and reduced change-outs.

Return On Investment
Sludge can be incredibly damaging to hydraulic components. By resisting oxidation and sludge buildup, a highperformance hydraulic fluid such as HYDREX saves you both time and money. HYDREX's advanced breakthrough formulation also lasts up to three times longer and provides up to two times better wear protection than the leading global hydraulics brand. For you, that means fewer change-outs and lower maintenance costs. **MT**

Petro-Canada
Mississauga, ON, Canada

Producing Major Savings For A Power Producer

National Power Corporation (NPC) is the largest provider and generator of electricity in the Philippines. Built in 1979, NPC's Agus 6/7 Hydroelectric Plant Complex is located along the Maria Cristina Falls on the Agus River in Mindanao. The Complex is*

made up of two hydroelectric power plants: Agus 6 encompasses Units 3, 4 and 5 and produces 150MW of electricity, while the smaller Agus 7 consists of Units 1 and 2 and has a rated capacity of 54MW. Between 2008 and the end of 2011, nine Scalewatcher water-conditioner systems were installed in the generator air-cooling equipment at the Complex. They have markedly improved both cooling effi ciency and rated capacity

Problem

Prior to the installation of the Scalewatcher systems, one set of generator air coolers was removed from the water-cooling system during every planned maintenance shutdown so that sludge could be manually removed from the copper tubing. According to A. F. Suezo, Jr., Plant Manager of the Complex, “Scientific studies showed that scale build-up reduces the efficiency of the cooling system and just 1/4 inch of scale formation can increase heating costs by 40%.”

Solution

Scalewatcher’s environmentally friendly technology provides a permanent solution to hard water problems without the need of chemicals, salt or maintenance. These systems work by producing a varying electronically applied force field, induced by a coil wrapped around the outside of the pipework, which keeps minerals in suspension and, thus, prevents lime scale from forming. The water’s increased solubility lets it dissolve existing scale, which is then gradually flushed away.

Return On Investment

Once the Scalewatcher systems were installed, it was observed that the scale, sludge and slime formation in the generator air coolers had been reduced to a point whereby during subsequent planned maintenance shutdowns, the plant’s maintenance team was able to discontinue the dismantling of all other air coolers for cleaning. Although it’s diffi cult to quantify the apparent increase in capacity and other benefits, Mr. Suezo points to conservative estimates indicating that even with a minimal increase of 1%, the plant will save 204MW of electricity per year—*which equates to annual savings of P15,202,800.00 (or around US$350,000)*
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In November 2011, Scalewatcher North America was advised that although Unit 4 was rated at 50MW, because of its age, the capacity had deteriorated to 30MW. Since installation of a Scalewatcher system, the unit’s capacity has increased by 5MW. Although their report was conservative, Mr. Suezo and Mr. Pates, the site’s Maintenance Manager, noted that the

additional capacity was suffi cient to light as many as 5000 homes and provide savings of $232,558 a month. Therefore, in the 39 months following the fi rst Scalewatcher installation, Unit 4 generated additional revenue amounting to $9,069,762.

Scalewatcher, North America
Oxford, PA

**Founded in 1936, in Quezon City, National Power Corporation (NPC) produces power using geothermal, natural gas, hydroelectric,*
oil and coal, and primarily serves distribution utilities,
co-operatives and industrial customers across the Philippines.

Scalewatcher North America, manufacturers of the original, patented and award-winning computerized electronic waterconditioner, offer a range of systems to suit domestic, commercial and industrial applications. Scalewatcher's technology is based on continuous research and over 20 years experience and expertise as market leaders in electronic scale control with countless units sold worldwide. Each Scalewatcher system has a 5-year manufacturer's warranty and comes with a full-year performance guarantee. Costs include free shipping within the USA.

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