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**Thielsch Engineering, Inc. Provides Root Cause Analysis for Xcel Energy at Sherco 3
Resulting in Major Lawsuit Against GE**

Cranston, RI (Feb 12, 2014) On Oct. 21, 2013-Xcel Energy submitted a long-promised Root Cause Analysis Report to the Minnesota Public Utilities Commission about the primary cause of the catastrophic outage that occurred in November 2011, at the coal-fired Sherburne County Unit 3 (Sherco 3).

Thielsch Engineering, Inc. was commissioned in late 2011 by Xcel Energy to conduct a root cause analysis and found that the Unit 3 steam turbine generator event on November 17, 2011 was initiated by the fracture of multiple finger pinned blade attachments in the Low Pressure Turbine "B" turbine end L-1 stage disk rim. The fractures resulted in liberation of portions of the finger pinned blade attachments and associated L-1 blades.

The loss of mass, due to the liberation of these blades and disk sections, created a significant imbalance at the affected stage, resulting in high amplitude vibration throughout the steam turbine generator train. This vibration was responsible for the fracture of the generator shaft, fractures of the exciter shaft at three locations, and extensive additional damage to the steam turbine generator train and other plant equipment.

As a result of the findings per Thielsch's highly detailed analysis, Xcel Energy Inc. and the co-owner and insurers of the Sherco 3 electric generator in Becker, Minn., have sued turbine maker General Electric Co., alleging that the manufacturer fraudulently concealed a known equipment defect for years. This incident is recognized as one of Minnesota's most expensive industrial accidents and has initiated a legal battle over a 22-month repair job costing over \$200 million.

For more information about Thielsch's Root Cause Investigations and Professional Engineering Services, please contact Peter Kennefick, VP, Thielsch Engineering, Inc. at (401) 467-6454 or via email at pkennefick@thielsch.com. You may also visit Thielsch Engineering, Inc. on the web at www.thielsch.com.

One of Minnesota's most expensive industrial accidents has triggered a legal fight over a 22-month repair job that cost more than \$200 million.

[Xcel Energy](#) Inc. and the co-owner and insurers of the Sherco 3 electric generator in Becker, Minn., have sued turbine maker General Electric Co., alleging that the manufacturer fraudulently concealed a known equipment defect for years.

Xcel's 1.2 million electric customers in Minnesota have a stake in the case because they were socked with \$65 million in costs for replacement power during the repair. The Southern Minnesota Municipal Power Agency (SMMPA), which owns 41 percent of Sherco 3, also is a plaintiff in the suit against Schenectady, N.Y.-based General Electric and three of its affiliates.

"It was a lost opportunity to sell the power out of Sherco 3," said Dan Hayes, a spokesman for SMMPA, said Wednesday. The power agency supplies electricity to 108,000 customers at 18 municipal utilities from Grand Marais to Austin.

General Electric had no response to the lawsuit on Wednesday.

Like Xcel, the SMMPA also purchased replacement power when Sherco 3 went down, but the agency absorbed the cost rather than increasing rates, Hayes said. The power agency is still tallying up the costs, he added.

Several insurers, including five based in London, also are part of Xcel's suit against GE. They held policies covering damage to the generator, and paid most of the repair costs for Xcel and SMMPA. Neither the insurers' attorney nor Xcel officials would comment on the suit Wednesday.

Turbine failure

The accident happened Nov. 17, 2011, as Xcel was testing the turbine after a service outage. The spinning turbine began to vibrate, then hurled pieces of metal across the turbine room and erupted in fire that damaged even more equipment.

"Fires raged, and but for the heroics of Unit 3 operators, the hydrogen used in the unit might have caused an even larger explosion," the lawsuit alleges. Nobody was hurt, but workers near the turbine "could have sustained serious personal injury or been killed," according to the suit.

The lawsuit, filed in Sherburne County District Court, alleges that General Electric and its service affiliates knew about a dangerous defect in its turbine blades for decades, and had documented dozens of earlier failures and had even developed and patented an improved design. Even so, the lawsuit contends, GE didn't tell Xcel about the problem before the accident.

At meetings with Xcel before the turbine was serviced, GE representatives reassured plant operators that inspections of the part that ultimately failed were not necessary "unless abnormal events or operational anomalies occur," according to the lawsuit. If GE or its service affiliate had recommended or performed a proper inspection, the problem would have been discovered before the catastrophe, the suit said.

An investigation of the accident by Thielsch Engineering of Cranston, R.I., later found that "stress corrosion cracks" had developed where turbine blades attach to the rotor, and concluded the cause was "solely a function of the original design." In a report filed with state regulators, Thielsch said the cracks probably began to develop a few years before the accident.

The lawsuit says that last October, two years after the Sherco accident, GE issued a letter to customers of such units, warning of the problem and recommending inspections.

The litigation began in November, but shortly after Sherco's owners and insurers filed their civil complaint, they agreed to redraft it because GE's lawyers argued that the charges weren't specific enough to prepare a defense. The amended suit, filed last week, accuses GE of fraudulent concealment, negligence and failure to warn, but doesn't specify damages.

In a separate lawsuit with similar allegations, Westmoreland Coal Co., whose Absaloka mine in Hardin, Mont., has a contract to supply coal to Sherco 3, is seeking \$36.7 million from GE in lost business during the nearly two-year outage. GE has asked Sherburne County District Judge Mary Yunker to dismiss that case.

Sherco 3 is one of three units at the power station 45 miles northwest of the Twin Cities. The other two units were undamaged. The coal-fired power plant is the largest in the Upper Midwest, capable of supplying 2 million homes.