

## **Fossil Energy Research Corporation Receives Patent for KnoxCheck® *In situ* Catalyst Activity Test System**

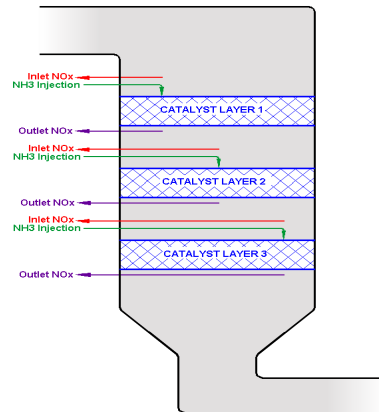
**KnoxCheck® System has Operated Successfully at Alabama Power Company's Plant Gorgas Unit 10 since 2005**

Laguna Hills, CA. January 2010.

Fossil Energy Research Corporation ([www.ferco.com](http://www.ferco.com)) a global leader in engineering services and R&D specializing in combustion and emissions control, recently received U.S. Patent No. 7,635,593 for the KnoxCheck® system, an *in situ* test system for measuring catalyst activity and reactor potential in SCR processes for reducing NO<sub>x</sub> emissions from utility boilers.

Until now, catalyst activity was determined by removing a physical sample of catalyst from the reactor and analyzing the activity in a laboratory. This limits the amount of activity data to about one sample a year, or less for SCR systems operating year-round. With limited data, projecting catalyst life is difficult and can result in higher SCR costs. However, with the Knoxcheck® *in situ* test system, catalyst activity can be measured at any time, on any layer while the SCR system is on-line.

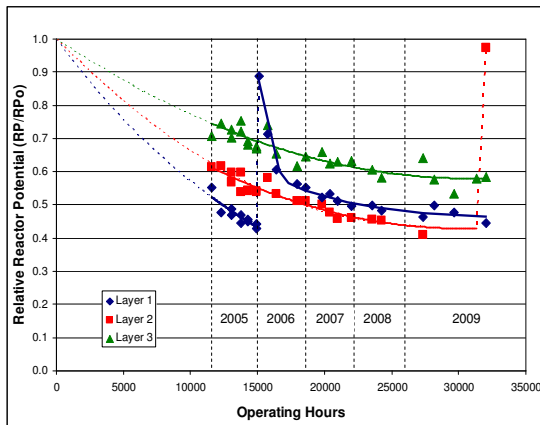
While the traditional laboratory approach measures the activity (K) of an extracted sample and uses the design area velocity (A<sub>v</sub>) with an estimate of the blockage to calculate the Reactor Potential, KnoxCheck® provides a direct measurement of Reactor Potential, which is the true value necessary to make informed catalyst management decisions.



*Typical KnoxCheck® Test Locations*



*KnoxCheck® Test Equipment*



*5 years of Reactor Potential Data*

KnoxCheck® has been successfully used at Alabama Power Company's Plant Gorgas Unit 10 over the 2005, 2006, 2007, and 2008 ozone seasons, and the full 2009 year, to monitor the activity on the multiple catalyst layers. The results of the past 5 years of testing clearly reflect the effect of catalyst layer replacements (Layer 1 before the 2006 ozone season and Layer 3 during 2009), and also illustrate the deterioration of catalyst performance that occurs over time. This data has been essential allowing Southern Company to make proactive decisions regarding the catalyst management strategy.

### About FERCo

FERCo is a global engineering services and R&D company specializing in combustion and emissions control. Founded in 1984, the company's goal is to provide research, pilot-scale development, and full-scale evaluation to industry and government in the area of applied energy and environmental systems. The senior staff have been involved in the combustion, energy, and environmental fields since the early 1970s. FERCo specializes in emissions reduction (SCR and SNCR), catalyst management, cold flow modeling, combustion diagnostics, pulverizer testing, fabrication of specialized equipment and pilot and laboratory studies.

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