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The National Energy Technology Laboratory Wins the FLC Mid-Atlantic Region Technology Transfer Award for High-Temperature Sorbent to Control Mercury in Gasification Processes

The Mid-Atlantic Region of the Federal Laboratory Consortium this year presented the third place, Regional Excellence in Technology Transfer Award to Dr. Evan J. Granite and Mr. Henry W. Pennline of the DOE National Energy Technology Laboratory for work on "High-Temperature Sorbent to Control Mercury in Gasification Processes."

In this project, the researchers at NETL developed a novel technology to remove mercury in gasification-based electric power generation systems, and transferred the technology to Johnson Matthey Corporation (JM) for commercialization. The technology was developed within the in-house research effort at DOE's National Energy Technology Laboratory (NETL). The technology transfer activities included the licensing of a patent on a technique to remove the pollutant mercury in gasification-based power generators, and a CRADA between NETL and JM. JM not only wished to pursue this mercury removal technology but also realized the future importance of coal gasification as a means to produce power, hydrogen, and chemicals. NETL's idea for mercury removal was licensed to JM under the CRADA. The potential market for the technology is significant. Additionally, when the technology is implemented, the American public will benefit because low-cost electric rates would continue and ambient air would be free of the air toxic, mercury.

Over 50% of the electric power generated in the United States comes from the use of coal. A major concern for power generation systems that use coal as an energy source is the air emissions from the plant. Although certain gaseous emissions are currently regulated, the emergence of new regulations by the EPA for the trace pollutant mercury will have a direct impact on coal-using facilities, both conventional steam generating systems as well as advanced power systems, such as integrated gasification combined cycle (IGCC) systems. The EPA ruling pertaining to mercury as proposed in March 2005 established that regulation of mercury emissions from utility steam generating units is necessary and appropriate.

Gasification is an important strategy for increasing the utilization of abundant domestic coal reserves and is a key to the improved power generation thermal efficiency of IGCC. The Department of Energy envisions increased use of gasification in the United States during the next several decades, particularly for its adaptability to remove carbon dioxide, a greenhouse gas. As such, the gasification-based technology strives to approach a near-zero emissions goal with respect to pollutants. Mercury is a pollutant that must be addressed by gas cleaning and conditioning. With EPA's Clean Air Mercury Rule, and several states promulgating their own regulations, the need exists for a low cost mercury removal technique that can be applied to gasification-based processes, e.g. IGCC, and conventional coal-burning plants. Thermal efficiency considerations and completeness of removal are two concerns that are alleviated when elevated temperature removals of mercury are conducted in a gasification system.

One of the most coveted awards in the field of technology transfer, FLC awards for Excellence in Technology Transfer recognize laboratory employees who have

accomplished outstanding work in the process of transferring Federally-developed technology to the marketplace. The award was made on September 21 at the region's annual meeting.

The Federal Laboratory Consortium is comprised of the technology transfer offices of all of the Federal laboratories throughout the country while its Mid-Atlantic Region focuses on the 70 Federal laboratories in DC, DE, MD, PA, VA and WV.

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