

## **Boeing Team Recognized for International Fusion Energy Research**

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A former McDonnell Douglas team, now part of The Boeing Company, has been recognized by the International Thermonuclear Experimental Reactor (ITER) project for developing technologies needed to demonstrate the feasibility of producing the sun's energy -- fusion energy -- on Earth.

In an Aug. 14 ceremony at Boeing in St. Louis, Allen Atkins, vice president of product application technologies in the Boeing Phantom Works division, accepted the ITER recognition award on behalf of the team from Dr. Charles C. Baker, ITER team leader for the United States.

"In trying to recreate the energy of the stars, ITER is the way of the future," Baker said. "And the Boeing team has taken us a long way toward realizing this future."

In accepting the award, Atkins said, "The ITER program is a great example of how aerospace has acted, and continues to act, as a seedbed of important technologies for all of industry."

The ITER project is an international R&D venture that builds on the achievements of fusion energy programs in the United States, Japan, the Russian Federation and the European Union. Its goal is to demonstrate the scientific and technological feasibility of producing fusion energy for peaceful purposes, with plans to construct a prototype reactor starting in 2001.

For the ITER project, the Boeing team has been developing complex heat exchangers called divertors for use in the ITER reactor. "The reaction chamber can get as hot as the surface of the sun," explained John Davis, ITER project manager for Boeing. "The technology we're developing will divert this heat and some impurities from the chamber and allow the reaction to continue."

Although fusion reactors get intensely hot, they are relatively safe and economical to operate, Davis added. The reactors can operate on hydrogen fuel, which is readily available in the water of oceans, lakes and rivers. They produce little, if any, radioactive waste, and they cannot experience runaway reactions.

The Boeing team's divertor development work has been based largely on technologies and materials developed earlier by the company (then McDonnell Aircraft) to prevent reentry vehicles from burning up in the Earth's atmosphere. In the 1960's, McDonnell Aircraft played a major role in the Mercury and Gemini spacecraft programs. The company has been using this background to conduct fusion-related R&D since 1974, and sees potential applications for the technologies in futuristic hypersonic aircraft.

The Boeing team was selected by Sandia National Laboratories to design and develop a full-scale prototype divertor for the ITER project in 1992. The team includes the Space Systems division of Boeing, General Atomic, Westinghouse, Brush Wellman and the University of Illinois. The team also includes almost 50 subcontractors throughout the United States -- mostly small and small disadvantaged businesses -- 16 of which are in the St. Louis area.

As chairman of the House Small Business Committee, U.S. Rep. Jim Talent (R-Mo.) also recognized the Boeing team for its active involvement with small businesses in making important advancements on the ITER project.

The ITER project was created in 1985 at the Paris and Geneva Summit meetings as a peaceful international collaboration effort. The four partners developed the detailed plans for this joint venture and have contributed approximately equal amounts of funding to the program.

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