



Department of Energy

Washington, DC 20585

APR 17 2001

Mr. Von L. Burton
Tech-Writer Associates
1729 Redding Road
Huntsville, AL 38516

Dear Mr. Burton:

Thank you for your April 5, 2001 letter and the enclosed copy of "Liquid Hydrogen as a Propulsion Fuel, 1945-1959" by John L. Sloop.

Hydrogen as a fuel does have many favorable characteristics for aircraft propulsion such as smaller engines, lighter take-off weight and being environmentally beneficial. In the latter regard, NASA has a funded ZERO-CO₂ program that is intended to develop ZERO-CO₂ emitting technologies (both turbine and fuel cell) for use in aircraft. These technologies will use hydrogen stored on board the aircraft as the fuel.

We are collaborating with NASA on the ZERO-CO₂ program through a hydrogen enriched turbine project in the DOE Hydrogen program. This collaboration is designed to promote the use of hydrogen in turbine applications. NASA has already supplied a burner which is currently being fitted into our laboratory facility at Sandia National Laboratories at Livermore CA for investigation.

We will be studying the combustion fluid dynamic behavior of hydrogen-enriched and pure-hydrogen flames in this realistic burner geometry. Issues such as flame stability and acoustic instability are critical to understand before this technology can be implemented. NASA will be able to utilize our improved understanding of these processes in the scale up of this process to their high-pressure facility and eventually to a realistic turbine.

The above activities are being managed by Mr. Neil Rossmeissl (202) 586-8668 of my staff and personnel from NASA Glenn. I would encourage you to discuss your

THRUST system issues and questions with Neil and Dr. Jay Keller at Sandia National Laboratories. Dr. Keller's telephone number is (925) 294-3316 and email address is jokelle@sandia.gov. Thank you for interest in the Hydrogen program.

Sincerely,

A handwritten signature in black ink that reads "Robert K. Dixon".

Robert K. Dixon,
Deputy Assistant Secretary
Office of Power Technologies
Energy Efficiency and Renewable Energy