

July 6, 2005

Admiral K. H. Donald  
Director, Naval Nuclear Propulsion  
U.S. Department of Energy  
Washington, DC 20585

Dear Admiral Donald:

In your letter of March 28, 2005, to Chairman Diaz, you asked the U.S. Nuclear Regulatory Commission (NRC) to review certain aspects of the civilian space nuclear fission reactor that will be developed for Project Prometheus. You requested the review because NRC, and its predecessor, the Atomic Energy Commission, have for many years performed independent technical reviews for Naval Reactors (NR) naval nuclear propulsion and civilian reactor programs and because the Independent Nuclear Safety Review Panel (INSRP), which is formed to facilitate the process of approving launches of nuclear systems into space, has no experience with reactors. You also sent NRC a copy of a memorandum dated April 20, 2005, on NR's decision to study the concept of an inert gas reactor coolant that is directly coupled to a Brayton thermal-to-electric power conversion cycle.

You note that at the earliest, NR will ask NRC to review a safety analysis report (SAR) for a ground-based prototype in early FY 2009 and an SAR for the launch of a flight unit in FY 2011. The NRC review will cover reactor casualties and the effects of handling, launch, and reentry mishaps on the reactor. The shipment of the core/reactor is normally covered by a Department of Energy certificate of compliance, but you also indicate that you plan to get an NRC certificate of compliance, as has been the practice in the past.

We should be able to support your schedule and scope of review. We will do the review on a cost-reimbursable basis. In our past reviews for NR, we were familiar with the technology we were reviewing. The uniqueness of the reactor design and power conversion system for this project could impact the depth of our review and the accuracy of our cost estimate. When NR refines its schedule for designing the Project Prometheus reactor, we will clarify the level of support we can provide.

The point of contact for reactor issues for this project is the Research and Test Reactors Section of the New, Research and Test Reactor Program, in the Office of Nuclear Reactor Regulation. Alexander Adams is the project manager for the reactor review and can be reached at (301) 415-1127. The point of contact for a Transportation certificate of compliance

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is Robert Lewis of the Spent Fuel Project Office in the Office of Nuclear Materials Safety and Safeguards. He can be reached at (301) 415-3567.

Please keep us informed as details of the project become better known. We look forward to assisting in this project to further explore the solar system.

Sincerely,

***/RA Martin J. Virgilio for/***

Luis A. Reyes  
Executive Director  
for Operations

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Package Accession No.: ML051530306

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