

UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

May 6, 1998

Mr. Robert D'Ausilio Chief Executive Officer and President INTRASPACE Corporation 421 West 900 North North Salt Lake City, Utah 84054

Dear Mr. D'Ausilio:

I am responding to the letter you sent to Commissioner Diaz of the U.S. Nuclear Regulatory Commission (NRC) dated December 10, 1997. In your letter, you requested the NRC's assistance in developing a regulatory process by which your corporation can launch and operate an In Orbit Space Transportation and Recovery (IOSTAR) space tug system.

The NRC currently has no licensing stand. ds pertaining to the commercial use of nuclear space systems. Under the Atomic Energy Act of 1954 (AEA), the NRC has licensing and regulatory authority over commercial nuclear facilities and nuclear materials for "activities...under or within the jurisdiction of the United States" (with the exception of nuclear exports, which under the AEA involve a transfer of control of nuclear items from the United States to a foreign sovereign). (See 42 U.S.C. §§ 2133 and 2134; 42 U.S.C. § 2014(bb): "The term 'United States' when used in a geograph: al sense includes all Territories and possessions of the United States, the Canal Zone and Puerto Rico."). Thus, to the extent that a commercial space venture would involve the construction and operation of a nuclear facility and possession of nuclear materials before any space launch activities, the NRC would clearly have jurisdiction. (See 42 U.S.C. §§ 2133 and 2134.) I should note, however, that, in light of the novel legal and policy issues that would be raised by a commercial nuclear space proposal, the NRC would want to consult with the Executive Branch before proceeding with the expenditure of resources necessary to license such a project.

The extent of the NRC's jurisdiction over a commercial space project once it enters the launch stage is highly questionable. There is nothing in the AEA to suggest that Congress intended to give the NRC licensing and regulatory jurisdiction over the possession and utilization of nuclear materials in space such as would be involved in your space tug proposal. The NRC would be reluctant to assume such responsibilities in the absence of specific legislative clarification.

× T-3 TRANSPORT

9805110167 980506 SUBJ SREG PHIL CF

11.035

The Commercial Space Launch Act of 1984, 49 U.S.C. §§ 70101 et seq., casts additional doubt on the NRC's jurisdiction over commercial nuclear space projects after a project reaches the launch stage. This legislation was enacted, among other things, to promote the development of commercial space activities (49 U.S.C. §§ 70101(b)(1) and (b)(4)) and unequivocally designates the Department of Transportation as the lead Federal Government agency "to oversee and coordinate the conduct of commercial launch operations, issue and transfer commercial jaunch licenses authorizing those operations, and protect the public health and safety, safety of property, and national security and foreign policy interests of the United States" (49 U.S.C. § 70101((b)(3)). The responsibilities of the Department of Transportation under this statute are carried out by the Office of the Associate Administrator for Commercial Space Transcortation of the Federal Aviation Administration (FAA). We have been informed by the FAA that its jurisdiction over commercial space projects, including the type of nuclear space tug you propose, would begin at the time of intentional ignition, and that its jurisdiction extends to accidental payload reentries and in-orbit activities arising out of a launch. The FAA has issued a notice of proposed rulemaking regarding commercial space transportation licensing regulations that contains useful guidance and information on the FAA's licensing and regulatory process with respect to commercial space launches (62 Fed. Reg. 13216 (March 19, 1997)).

In your letter, you request that the NRC act as the President's "designee...for commercial space nuclear systems." We are unclear as to what you mean by this statement. If you mean to suggest that the NRC could act as the lead Federal agency to implement the United States' international outer space treaty obligations, the NRC has not been given any Presidential or legislative authority to assume this role. The only formal Presidential directive concerning commercial space activities that we are aware of explicitly designates "the Department of Transportation...as the lead agency within the federal government for encouraging and facilitating commercial [expendable launch vehicle] operations by the United States private sector." (Exec. Order No. 12465, Section 1, 49 Fed. Reg. 7211 (1984)).

On the basis of the existing law as described above, it is conceivable that the proposed nuclear-powered space tug could undergo a two-phase licensing process, with the NRC possessing jurisdiction during the pre-launch phase and the FAA taking over jurisdiction once the project reaches the launch or intentional ignition stage.

The following information is intended to give you an idea of some of the issues involved in the current NRC licensing process for nuclear reactors but is in no way complete. I wish to emphasize that this description is for background purposes only and is not intended to suggest what type of licensing process the NRC might find to be appropriate for nuclear reactors incorporated into a space vehicle. Although the regulatory requirements that will be noted apply to reactor licensing in general, there would very likely be a need to modify or tailor many of the existing requirements (which are generally directed to land-based reactor facilities) for application to the unique reactor design that you propose.

3

I should also note that the NRC fully recovers all its fees from its licensees. Since there are currently no licensing standards pertaining to commercial nuclear space ventures, the development of new standards for dealing with space vehicles would likely involve substantial amounts of regulatory effort and time. Current fees for NRC licensing reviews and annual fees for licensed activities are contained in 10 CFR Parts 170 and 171. In addition, all Part 50 reactor licensees are required by 10 CFR Part 140 to maintain financial protection to cover liability caused by nuclear accidents.

The licensing process relater' to reactors involves in-depth reviews of all documentation related to the facility, an operative, and publication in the <u>Federal Register</u> of a notice of the license application, including notice of an opportunity for a hearing and a notice of the outcome of the NRC staff's review of the application. The NRC's regulations are 10 nd in the enclosed Title 10 of the <u>Code of Federal Regulations</u>, Part 1 through Part 199. Part 50 of Title 10, "Domestic Licensing of Production and Juliization Facilities" (10 CFR Part 50), contains most of the requirements for nuclear reactors.

To issue a license, the NRC staff performs a safety evaluation of an applicant's application and analysis to ensure that the proposed facility (1) can be built and operated without undue risk to the health and safety of the public, (2) is not inimical to the common defense and security of the United States, and (3) makes other findings as necessary. The staff also performs an environmental review of the proposed facility to determine whether it can be built and operated without an unacceptable adverse effect on the environment. 10 CFR Part 51 requires the applicant to prepare an environmental analysis and report that describe and evaluate the environmental impacts of the proposed action. Sections 50.30 through 50.40 of 10 CFR Part 50 set out technical and safety-related information that must be submitted by the applicant. The primary safety document submitted by the applicant is the safety analysis report. Enclosed are Part 1 of NUREG-1537, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors," and the standard review plan that the staff uses for performing safety reviews of non-power reactor applications, Fart 2 of NUREG-1537.

The NRC issues a construction permit to an applicant that authorizes the nuclear plant to be built in accordance with the application. During the construction process, NRC inspectors conduct inspections to ensure that the facility is constructed as described in the application. The construction permit holder then submits an application to the Commission for an operating license. The staff performs a detailed review of this application. The licensing process provides an opportunity for an adjudicatory hearing for persons whose interests may be affected.

The staff also reviews environmental documentation concerning the facility, technical specifications for operation of the facility, an emergency plan, a security plan for the facility, financial information concerning the owners, and decommissioning information.

4

NRC-licensed reactors are operated by reactor operators and senior reactor operators who are licensed by the NRC. Persons who operate licensed reactors are subject to NRC operator licensing requirements, including requirements covering fitness for duty and completion of a training program.

I hope thas you will find this information useful in determining your course of action. If you require more information, please contact Patrick Isaac of my staff at 301-415-1019 or Grace Kim of the Office of the General Counsel at 301-415-3605.

Sincerely,

Original signed by Samuel J. Collins Samuel J. Collins, Director Office of Nuclear Reactor Regulation

Enclosures: As stated

DISTRIBUTION: Docket File P-696 PUBLIC (w/incoming) EDO #G970897 EDO r/f LCallan AThadani HThompson PNorry JBlaha SBurns CPaperiello MKnapp SCollins/FMiraglia

BSheron WTravers NRR Mailroom (05-E7) PDND r/f JRoe DMatthews SWeiss MClark (GT897) MBoyle (MLB4) OGC OPA OCA MLopez-Otin (016-G15) MMendonca AAdams CBassett TBurdick PDoyle TDragoun WEresian SHolmes PIsaac (w/incoming) TIMichaels EHylton(w/incoming) SECY#970897 RZimmerman

*PREVIOUSLY CONCURRED

In. PDND:RE TECH ED.* PDND:LA PDND:(A)D OGC* Plsaac **BCalure** EHviton MMendonca GKim 419/98 4/8/98 4/9/98 4/2/98 479798 DRPM:(A)D* DONRR* OCN ONRR EDO SCollins (for sign.) JRoe SCollins LCallan SJackson 1/98 2/26/98 2/27/98 \$16198 4/13/98 OFFICIAL RECORD COPY

DOCUMENT NAME: G:\SECY\ACTN ITM\GT897.PI

NRC-licensed reactors are operated by reactor operators and senior reactor operators who are licensed by the NRC. Parsons who operate scansed reactors are subject to NRC operator licensing requirements, including requirements covering fitness for duty and completion of a training program.

I hope that you will find this information useful in determining your course of action. If you require more information, please contact Patrick Isaac of my staff at 301-415-1019 or Grace Kim of the Office of the General Coursel at 301-415-3605.

Sincerely,

Samuel J. Collins, Director Office of Nuclear Reactor Regulation

Enclosures: As stated