"Second Satellite Wholly Powered By Nuclear Energy Launched Recently; Operating Successfully."[27] A February 1964 status report, however, recorded that useful doppler signals from the first launching were no longer being received, although the second SNAP-9A, launched two months earlier, continued to perform perfectly.[28]

As plans matured for the launch of the third and last SNAP-9A in the series, attention to safety issues was even more concentrated. A mission abort occurred on that launch, indicating that this attention was well placed. Procedures and mechanisms for handling potential hazards had placed heavy demands on resources throughout the development and use of the RTGs. Safety procedures became highly formalized before the manned lunar flights which required larger power supplies and multiplied the potential hazards of mishaps.

Evolution of a Safety Program

Dix, Finger's nuclear safety officer, commented "We always proceeded on the assumption that if we had one abort resulting in the release of radioactivity the program would be lost."[29] Tom Kerr, who came to the Joint Space Nuclear Propulsion Office in June 1962 as NASA's coordinator of safety reviews for all space nuclear systems, also reflected this determination to keep failures from destroying the program. Kerr documented the story of procedures for safety clearances following DOD and the AEC informal reviews of the two SNAP-3A launches:

> In preparation for the SNAP-9A launches in 1963, an expanded review group and procedures were implemented. NASA was invited to participate in the reviews; although the launches were for DOD navigation systems. At that time the responsibility for these reviews was made a part of the responsibilities of the joint AEC/NASA Space Nuclear Power Office.... It was during these early reviews and launches that efficient and comprehensive review and approval procedures were developed.[30]

Specialists were not prepared initially to work with the space nuclear environment. Procedures used for ground based systems could not be followed; the RTGs were lightweight and heavy shielding had to be avoided. Moreover, a number of situations had to be considered: launch failure on or near the launch