recalled that the RTG program people persistently requested NASA to define missions using RTGs, but until Apollo, all they got were test flights.[15]

With the Nimbus mission, however, the program received a test opportunity that was the gateway to space spectaculars. Early Nimbus spacecraft were powered exclusively by solar cells; as an experiment in the use of RTGs, the Nimbus-B satellites carried two of the isotopic units as auxiliary power supplies to the solar cells. Rock said: "Nimbus was an experiment to demonstrate to the civilian space community, as Transit had to the military community, that RTGs would work. We needed this experiment. After Nimbus, NASA made a commitment to RTGs, and Apollo brought us out of a low-level operation to a major effort."[16]

The SNAP-19 design resulted in a 30-watt generator. Two of these devices were to be used on the Nimbus-B spacecraft which, at the time the formal agreement between AEC and NASA was signed in September 1965, was scheduled for launch sometime in 1967.[17]

The AEC-NASA agreement on SNAP-19 was a prototype for all agreements between the two agencies on RTGs for NASA space vehicles. It acknowledged that both agencies recognized the potential performance advantages of RTGs over other space-power concepts "when applied to certain long duration space missions" and that cooperative efforts between the AEC and NASA would be required "to ensure effective system development and space vehicle integration...." The agreement covered the SNAP-19 power supply for Nimbus-B spacecraft and also other power units that might be mutually agreed to in writing.[18]

The safety issue became a major concern in the SNAP-19 Nimbus experience. "Before Nimbus," said Dix, "our safety concept was 'burnup on reentry.' But now we were going to 34,000 curies of radioactive material, which would be an appreciable fraction of the total in the atmosphere. We had some terrible sessions with the Space Council. That first INSRP (Interagency Nuclear Safety Review Panel) on Nimbus was a bloody one."[19] The INSRP deliberations led to design changes in the SNAP device and to revised safety concepts.

As a result of experiences on SNAP-9A and the increase in curies for SNAP-19, the fuel form for SNAP-19 had been changed from plutonium metal to plutonium oxide in the form of small microspheres carried in capsules. On SNAP-3 and 9A, the safety concept called for the plutonium metal to burn up