

manufacture of RTG hardware (specifically, iridium-alloy CVS and CBCF thermal-insulator piece parts) needed for systems to power spacecraft for NASA's CRAF and Cassini missions.

2.2 PROGRAMMATIC INTERFACES

Before describing the components manufactured by Energy Systems, a brief description of an RTG power system and the interfaces among program participants is required. The current design of the RTG power system is the General Purpose Heat Source (GPHS). As indicated in Figs. 1 and 2, the RTG is contained in an aluminum radiator, below which are thermoelectric converters followed by 18 rectangular carbon aeroshells that contain the radioisotope materials. Each rectangular aeroshell contains four plutonia pellets encapsulated in iridium-alloy cladding. These encapsulated pellets are further contained in a CBCF thermal insulator shell (Fig. 3). General Electric Company (GE)-Valley Forge was responsible for the design and the reliability of the GPHS system.

For the RTG systems to be flown on the CRAF and Cassini missions, Energy Systems, specifically ORNL, will process iridium powder into 2-in.-diam by 0.035-in.-thick blanks and 0.005-in.-thick foil. The Y-12 Plant will use these blanks and foil to manufacture CVS. CVS will be sent to Westinghouse Savannah River Company, which will encapsulate the plutonia pellets by performing a closure weld on the CVS and subsequently shipping the encapsulated pellets to the EG&G Mound Applied Technologies (EG&G-MAT) plant. EG&G-MAT will also receive the aluminum radiator and thermoelectric materials from GE, high-density carbon components from industrial vendors, and the CBCF thermal insulators manufactured by ORNL. These components will be assembled into the RTG power system and certified for its end use by EG&G-MAT (Fig. 4).

2.3 ENERGY SYSTEMS PRODUCTION TASKS

As indicated previously (Sect. 1), Energy Systems has responsibility for manufacturing and ensuring the quality of the CVS and CBCF components. To ensure the quality requirements of the program are met, a hierarchy of quality assurance (QA) and configuration control documents have been prepared by Energy Systems. These documents have been prepared to ensure the flowdown of quality actions to the appropriate subtier documents. The