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^{238}Pu FUEL FORM ACTIVITIES

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FOREWORD

This report for ^{238}Pu Fuel Form Activities has one main section: SRP-PuFF Facility. The SRL portion of this program has been completed. The program status, budget information, and milestone schedules are discussed.

The SRP portion of this report summarizes production of $^{238}\text{PuO}_2$ fuel forms for use in radioisotopic thermoelectric generators (RTG's) in the Plutonium Fuel Form (Puff) Facility at the Savannah River Plant. The PuFF Facility was started up in December 1978 producing iridium-encapsulated, 100-watt $^{238}\text{PuO}_2$ spheres for MHW (multihundred watt) RTG's. This program was completed in April 1980. The PuFF Facility began producing iridium-encapsulated, 62.5-watt $^{238}\text{PuO}_2$ right circular cylinders for GPHS (General Purpose Heat Source) RTG's in June 1980. This program was completed in December 1983. The PuFF Facility has been placed in a production readiness mode of operation pending funding of additional heat source programs.

The Work Breakdown Structure (WBS) for this program is shown in Figure 1.

This program is funded under B&R AE-20-10-5-0.

FIGURE 1. Work Breakdown Structure for Pu-238 Fuel Form Activities

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HIGHLIGHTS

SRP-PuFF FACILITY

- The PuFF Facility remains in a production readiness mode of operation.

SRP-PuFF FACILITY (WBS 1.1)

PuFF FACILITY PRODUCTION (WBS 1.1.1)

GPHS Production (WBS 1.1.1.1)

Objective

The objective of this work is to maintain the facility and equipment so that the process can be restarted when additional space and/or terrestrial programs have been funded.

Narrative

Summary

- The PuFF Facility remains in a production readiness mode of operation.

GPHS Fabrication

Process. All essential equipment continues to be exercised and maintained so that the facility can be restarted with a minimum amount of effort. Preventative and periodic maintenance continues to be performed as needed. Spare parts inventory continues to be maintained at an acceptable level.

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TABLE 1**Milestone Log for GPHS Production**

Work Breakdown Structure Number	Description	Planned Completion Date	
		Current	Original
1.1.1.1	<u>GPHS Production</u>		
1.1.1.1.1A	Supply 3 GPHS Fueled Clads (FC's) to LANL for Impact Attitude Series Tests.	Indefinitely Delayed	02/81
1.1.1.1.1B	Supply 88 Flight Quality GPHS FC's for GPHS/Galileo Orbiter Flight RTG (F-2)	Completed 11/82	09/82
1.1.1.1.1C	Installation and Operation of Vacuum Outgas Furnace.	Completed 02/83	10/81
1.1.1.1.1D	Supply 88 Flight Quality GPHS FC's for GPHS Backup RTG (F-3)	Completed 06/83	10/83
1.1.1.1.1E	Supply 88 Flight Quality GPHS FC's for GPHS/ISPM Flight RTG (F-4)	Completed 01/84	05/83
1.1.1.1.1F	Complete Galileo and ISPM GPHS FC Requirement, Total Required = 506	Completed	08/83

SRP CAPITAL EQUIPMENT (WBS 1.1.2)

Capital costs for the SRP Pu-238 program are shown in Table 2.

TABLE 2**SRP Pu-238 Capital Costs**

	<u>Project Number</u>	<u>Budget Amount, \$</u>	<u>Project Approval</u>	<u>Project \$</u>
FY-1980 Projects Water Monitors	S-2199	110,000	11/79	120,860 (closed 3/85)
FY-1982 Projects Spare Hot Press Vacuum Chamber, 235-F	S-1620	105,000	08/82	103,794
Provide Shield Windows PuFF, 235-F	S-3438	170,000	07/82	56,341 (closed 2/85)
FY-1983 Projects Minor Projects (<75,000)	S-3943	40,000	10/82	21,097 (closed 11/84)
Update Instrumentation, 235-F	S-3904	250,000	05/83	186,209
Improve Breathing Air Capacity, 235-F	S-3961	240,000	06/83	103,995
Replace Instrument Air Compressors, 235-F	S-2520	130,000	06/83	104,744
FY-1984 Projects Minor Projects (<75,000)	S-3643	200,000	10/83	20,233
Replace Lead/Annealed Glass Windows, 235-F	S-4133	500,000	02/84	32,729
FY-1985 Projects Minor Projects (<75,000)	S-3737	120,000	10/84	39,918
FY-1986 Projects Minor Projects (<75,000)	S-2680	36,000	10/85	1000