

# **Pu-238 FUEL FORM ACTIVITIES**

**JANUARY 1-31, 1985**

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**E. I. du Pont de Nemours & Co.  
Savannah River Plant  
Aiken, SC 29808**

PREPARED FOR THE U.S. DEPARTMENT OF ENERGY UNDER CONTRACT DE-AC09-76SR00001

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**MASTER****Pu-238 FUEL FORM ACTIVITIES**

DPST--85-133-1

DE85 014940

**JANUARY 1-31, 1985**

Approved by

J. F. Ortaldo  
Superintendent  
Separations Technology Department

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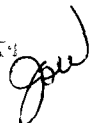
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## FOREWORD

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This monthly report for  $^{238}\text{Pu}$  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 monthly 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. Starting with the January 1981 issue, the number of the  $^{238}\text{Pu}$  Fuel Form Activities monthly report was changed to DPST-year-133-month from DPST-year-129-month.

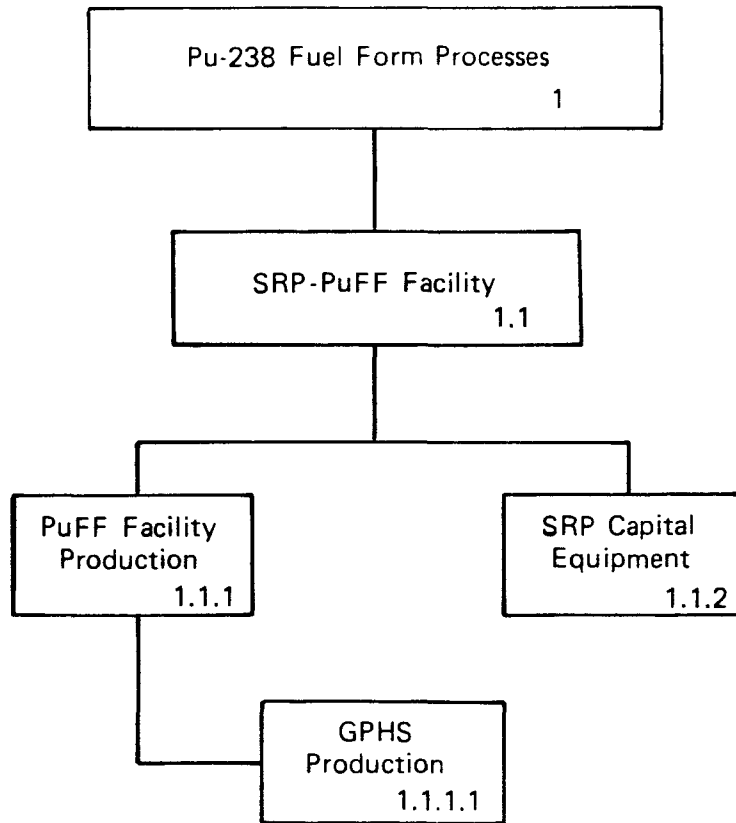


FIGURE 1. Work Breakdown Structure for Pu-238 Fuel Form Activities

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## **HIGHLIGHTS**

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### **SRP-PuFF FACILITY**

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

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**SRP-PuFF FACILITY (WBS 1.1)**

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**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.

MILESTONE SCHEDULE AND STATUS REPORT

1 CONTRACT IDENTIFICATION CPHS Production			2 REPORTING PERIOD 1 Jan 85 through 31 Jan 85				3 CONTRACT NUMBER 1.1.1.1																																										
4 CONTRACTOR NAME AND ADDRESS E. I. du Pont de Nemours & Co Aiken South Carolina			5 CONTRACT START DATE				6 CONTRACT COMPLETION DATE																																										
7 IDENTIFICATION NO 0.1	8 REPORTING CATEGORY (i.e. CONTRACT LINE ITEM OR WORK BREAKDOWN STRUCTURE ELEMENT) CPHS Flight Quality Production	9 FISCAL YEARS AND MONTHS												10 PERCENT COMPLETE																																			
		<table border="1"> <tr> <th colspan="12">FY-1985</th> <th colspan="4">1986</th> <th>1987</th> <th>1988</th> <th>1989</th> </tr> <tr> <th>O</th><th>N</th><th>D</th><th>J</th><th>F</th><th>M</th><th>A</th><th>M</th><th>J</th><th>J</th><th>A</th><th>S</th> <th>1</th><th>2</th><th>3</th><th>4</th> <th></th> <th></th> <th></th> </tr> </table>													FY-1985												1986				1987	1988	1989	O	N	D	J	F	M	A	M	J	J	A	S	1	2	3	4
FY-1985												1986				1987	1988	1989																															
O	N	D	J	F	M	A	M	J	J	A	S	1	2	3	4																																		
11 REMARKS																																																	
12 SIGNATURE OF CONTRACTOR'S PROJECT MANAGER AND DATE							13 SIGNATURE OF GOVERNMENT TECHNICAL REPRESENTATIVE AND DATE																																										

FIGURE 2. Milestone Schedule and Status Report for CPHS Production

CONTRACT MANAGEMENT SUMMARY REPORT

1 CONTRACT IDENTIFICATION CPHS Production			2 REPORTING PERIOD 1 Jan 85 Through 31 Jan 85				3 CONTRACT NUMBER 1.1.1.1											
4 CONTRACTOR NAME AND ADDRESS E. I. du Pont de Nemours & Co. Aiken South Carolina			5 CONTRACT START DATE				6 CONTRACT COMPLETION DATE											
7 MONTHS			O	N	D	J	F	M	A	M	J	J	A	S	TOTALS	FY 1985		
9 COST STATUS																		
														10 BPSL DATE				
														11 PLANNED COSTS PRIOR FYS				
														12 ACTUAL COSTS PRIOR FYS				
														13 TOTAL ESTIMATE FY COSTS FOR CONTRACT				
														14 1723				
														15 TOTAL CONTRACT VALUE				
														16 UN-FILLED ORDERS OUTSTANDING				
ACCRUED COSTS			C: PLANNED	130	115	120	125	130	135	140	145	155	160	170	198	1723	17 ESTIMATE FOR SUBSEQUENT REPORTING PERIOD	
			D: ACTUAL	126	102	102	124											
			E: VARIANCE	4	(6)	(18)	29											
			F: CUM VARI	4	(2)	(20)	9											
REMARKS																		
13 SIGNATURE OF CONTRACTOR'S PROJECT MANAGER AND DATE								14 SIGNATURE OF THE GOVERNMENT TECHNICAL REPRESENTATIVE AND DATE										

FIGURE 3. Contract Management Summary Report for PuFF Facility Production

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
FY-1982 Projects Spare Hot Press Vacuum Chamber, 235-F	S-1620	105,000	08/82	4,000
Provide Shield Windows PuFF, 235-F	S-3438	170,000	07/82	56,341
FY-1983 Projects Minor Projects (<75,000)	S-3943	40,000	10/82	21,097
Update Instrumentation, 235-F	S-3904	250,000	05/83	20,187
Improve Breathing Air Capacity, 235-F	S-3961	240,000	06/83	80,340
Replace Instrument Air Compressors, 235-F	S-2520	130,000	06/83	54,818
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	20,000
FY-1985 Projects Minor Projects (<75,000)	S-3747	50,000	10/84	0

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