TID/SNA - - 2170

AEROJET NUCLEAR SYSTEMS COMPANY
SACRAMENTO, CALIFORNIA

TO: W. J. Houghton DATE: 13 December 1971
FROM: L. M. Smalec N8620:M050
SUBJECT: Engine Cooldown Preliminary Analysis
COPIES TO: D. Buden, W. E. Stephens, File
ENCLOSURE: (1) Comparison Table - Late Cooldown Options

MASTER

The objective of this memo is to update the data for the cooldown scheme designated, "Reflector Redesign (14 kw)". Approximately 14 kw of decay power can be dissipated continuously during late cooldown by radiation from the pressure vessel. The performance data presented at the semi-annual Status Review Meeting included only the advantage which could be derived by terminating cooldown at 14 kw, instead of at the base case 10 kw level.

A corrected table for comparing the "late" cooldown options is included as Enclosure (1).

L. M. Smalec

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Performance Analysis & Hybrid Computer Section

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CLASSIFICATION CATEGORY	
<i>Unclassified</i>	
<i>D. Buden</i>	12/13/71
CLASSIFYING OFFICER	DATE

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"LATE" COOLDOWN OPTIONS

COOLDOWN METHOD	$\bar{I}_{SP}$ (SEC)	Δ SYSTEM WT. (LB)	Δ PAYLOAD (LB)	COOLDOWN TERMINATION (HRS)
400E PULSED TANK FLOW	788.4	—	—	31.4
REFLECTOR REDESIGN (14KW)	791.9	*	+1300	23.5
DUAL MODE (200KW- THERMAL)	800.4	2400	+2080	3.8
DUAL MODE (500KW- THERMAL)	803.9	6000	-200	1.6

* NO CORRECTION FOR ADDED WEIGHT

RESULTS BASED ON:

- I_{SP} IS AVERAGE FOR TOTAL BURN
- TOTAL PROPELLANT CONSUMPTION = 300,000 LBS
- PAYLOAD REACHES VELOCITY OF 24,174 FT/SEC

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