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Optical Imaging Systems - Program A

DAMON Pallet Experiment

o Objectives

- Establish precedent for reconnaissance from Shuttle
- Develop experience and technical data base with STS
- Acquire useful intelligence to augment search
- Evaluate utility of man in mission enhancement
- Evaluate benefits/impacts of orbiter services

o Hardware: Lockheed Prime/Perkin-Elmer Camera Subcontractor

- HEXAGON two camera assembly (TCA)
- Orbiter independent command, control, telemetry operation
- Support assembly for structure and orbiter bay interface

o Lockheed/P-E selection minimizes cost/technical risk

- Known and reliable camera system
- Existing operational software/procedures
- Substantial levels of GFE manpower and hardware are provided from on-going programs (G&H)

o Performance

- NIIRS 3-5 range, 45" GRD average at 150 NM
- 12-15 million square nautical miles gross in six-day mission (80K Ft SO-315 film)
- 57° inclination orbit, 110-150 NM perigee expected

o First flight mid-1982/second early 1983 - Refurbish/refly on limited basis through 1984

Perceived Needs in the Post-85 Approved NRP Program

o Post-85 program has less capability than present

o Perceived needs include:

- Synoptic collection capability
- MC&G exploitation economy
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- Surge collection capability

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- Back-up/alternate imaging capability
- Survivable imaging capability

Technical Alternatives to Fulfill Perceived Needs

o DAMON Based Concepts

- Minor modifications permit partial MC&G and additional reflights
- Major modifications permit full MC&G capability, quick reaction capability, [redacted]

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o General Pallet Concepts

- Specialized mission pallets for extended experiments
- Multi-mission pallet capable of reconfiguration to supplement [redacted]

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o Free Flyer Concepts

- STS launched on demand for supplement/backup to continuous surveillance missions
- STS launched [redacted] for quick reaction back-up and surge search capability
- ELV launched on demand for crisis response and survivability/reconstitution of imaging capability

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Program Review and Decision Milestones

o FY 80 Program

- \$16.5M for DAMON hardware acquisition
- \$0M for supplement/backup systems study

o FY 81 Program

- \$21.7M requested for DAMON hardware and NASA flight cost reimbursement
- \$4M requested for supplement/backup concept development and mission definition

o FY 82 Program

- \$25.8M requested for DAMON flight operations and pallet refurbishment
- \$36M requested for initiation of competitive design contracts for required supplement/backup systems

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