NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
CONSTRUCTION OF FACILITIES
FISCAL YEAR 1998 ESTIMATES

HUMAN SPACE FLIGHT

SUMMARY

Other Human Space Flight:	**Amount (Dollars)**
Repair Of Payload Changeout Room Wall & Ceiling, Pad A (KSC)	2,200,000
Restoration of Pad Surface & Slope, Pad A (KSC)	1,800,000
Rehabilitation of 480V Electrical Distribution System, MAF (MSFC)	2,800,000
Total Human Space Flight	**6,800,000**

CONSTRUCTION OF FACILITIES
FISCAL YEAR 1998 ESTIMATES

PROJECT TITLE: Repair of Payload Changeout Room Wall and Ceiling, Pad A

INSTALLATION: John F. Kennedy Space Center

FY 1998 Estimate: $2,200,000

LOCATION OF PROJECT: Kennedy Space Center, Brevard County, Cape Canaveral, Florida

COGNIZANT HEADQUARTERS OFFICE: Office of Space Flight

FY 1997 AND PRIOR YEARS FUNDING: The following prior years funding is related to this project:

	Planning and Design	**Construction**	**Total**
Specific Construction Funding	$220,000	---	$ 220,000
Capitalized Investment	---	$98,995,262	98,995,262
Total	**$220,000**	**$98,995,262**	**$99,215,262**

SUMMARY PURPOSE AND SCOPE:

The Launch Complex 39 Pad A Payload Changeout Room (PCR) was originally designed and built to provide a controlled environment for pre-flight services of space shuttle hardware. This project replaces damaged structures that now allow contaminants to enter the PCRís controlled space. It also enhances the efficient and effective operation and maintenance of the PCR space and supporting utilities. The PCR is required for Kennedy Space Center to perform its assigned Agency roles and missions.

PROJECT JUSTIFICATION:

Contamination levels within the PCR have increased significantly. These contaminants enter the PCR via the damaged exterior walls and deteriorated access doors, which can no longer maintain necessary pressurization levels. Friable insulation associated with mechanical components also contributes to the contamination. This project will prevent the payload processing environment from exceeding acceptable limits for contamination and pressurization capability and becoming a launch constraint.

IMPACT OF DELAY:

Failure to provide timely repair of the PCR structure and supporting mechanical systems will allow contamination levels to exceed acceptable limits. This will hinder space shuttle launch preparation and potentially cause launch delays. Also, operation and maintenance costs associated with keeping the deteriorated structure and mechanical components operating will continue to increase.

PROJECT DESCRIPTION:

This project replaces damaged PCR wall panels, illuminates the access area within the PCR plenum, replaces the ceiling grid assembly, and replaces or eliminates various leaking access doors. The high efficiency particular air (HEPA) filter housing will be reconfigured to allow safer accessibility.

Project Cost Estimate	Unit of Measure	Quantity	Unit	Cost
Civil/Structural	Lump Sum(LS)	--	---	$1,800,000
Mechanical	LS	---	---	200,000
Electrical	LS	---	---	200,000
Total	---	---	--- ---	**$2,200,000**

LIST OF RELATED GRAPHICS: Figure 1 - Site Plan

OTHER EQUIPMENT SUMMARY: None

FUTURE ESTIMATED CONSTRUCTION FUNDING REQUIRED TO COMPLETE THIS PROJECT: None

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CONSTRUCTION OF FACILITIES
FISCAL YEAR 1998 ESTIMATES

PROJECT TITLE: Restoration of Pad Surface and Slope, Pad A

INSTALLATION: John F. Kennedy Space Center

FY 1998 Estimate: $1,800,000

LOCATION OF PROJECT: Kennedy Space Center, Brevard County, Cape Canaveral, Florida

COGNIZANT HEADQUARTERS OFFICE: Office of Space Flight

FY 1997 AND PRIOR YEARS FUNDING: The following prior years funding is related to this project:

	Planning and Design	**Construction**	**Total**
Specific Construction Funding	$96,000	---	$ 96,000
Capitalized Investment	---	$98,995,262	98,995,262
Total	**$96,000**	**$98,995,262**	**$99,091,262**

SUMMARY PURPOSE AND SCOPE:

This project restores the structural concrete of the launch pad surfaces to prevent the ingress of water which accelerates deterioration of subbase materials and imbedded reinforcing steel. Pad A is required for Kennedy Space Center to perform its assigned Agency roles and missions.

PROJECT JUSTIFICATION:

Pad Aís concrete surface, slopes, and catacomb areas are over 30 years old, and deteriorated with cracks, spalls, and broken sections that are unsafe for launch operations. The cracks in the pad surface permit launch and rain water to leak into and weaken the underlying compacted fill. Launch vibration and hydrostatic pressure on the undermined slopes cause the concrete panels to crack further and break into pieces. Cracks in the pad surfaces allow acidic launch water to attack the pad rebar, which erodes and results in spall failures of the catacomb ceiling and a structural weakening of the launch pad. The crawlerway grid path also has cracks in the substructure, which allows water to undermine the slopes and also attack the catacomb rebar and concrete.

IMPACT OF DELAY:

Failure to provide timely repair of the launch pad concrete surfaces will allow the rate of water infiltration and subsequent structural weakening to accelerate, rapidly increasing the ultimate repair cost. Also, the shuttle manifest allows a unique five-month window in January 1998 to implement this project. The next available window will be in the year 2001.

PROJECT DESCRIPTION:

This project repairs cracks in the launch pad concrete surfaces and replaces or repairs fractured and broken sections of concrete. The cracked areas of the pad slopes will be sealed and the broken and raised or ìbulgedî portions will be removed. The underlying fill will be replaced and recompacted. The subbase under the crawlerway slabs will also be repaired. Cracks and joints on the pad surface will be sealed. The cracks in the concrete ceiling structure of the catacombs will be repaired.

PROJECT COST ESTIMATE:

Project Cost Estimate	Unit of Measure	Quantity	Unit Cost	Cost
Civil/Structural	LS	---	---	$1,800,000
Total	**--**	**--**	**--**	**$1,800,000**

LIST OF RELATED GRAPHICS: Figure 1-Site Plan

OTHER EQUIPMENT SUMMARY: None

FUTURE ESTIMATED CONSTRUCTION FUNDING REQUIRED TO COMPLETE THIS PROJECT: None

CONSTRUCTION OF FACILITIES
FISCAL YEAR 1998 ESTIMATES

PROJECT TITLE: Rehabilitation of 480V Electrical Distribution System, External Tank Manufacturing Building

INSTALLATION: Michoud Assembly Facility

FY 1998 ESTIMATE: $2,800,000

LOCATION OF PROJECT: New Orleans, Orleans Parish, Louisiana

COGNIZANT HEADQUARTERS OFFICE: Office of Space Flight

FY 1997 AND PRIOR YEARS FUNDING: The following prior years funding is related to this project:

	Planning and Design	**Construction**	**Total**
Specific Construction Funding	$382,000	$ 2,500,000	$ 2,882,000
Capitalized Investment	---	54,444,830	54,444,830
Total	**$382,000**	**$56,944,830**	**$57,326,830**

SUMMARY PURPOSE AND SCOPE:

This project rehabilitates and modifies the 480V electrical distribution system which supports critical External Tank (ET) manufacturing operations in the Mechanical Sub-Assembly, Intertank, and Dome Assembly areas of the ET Manufacturing Building (103). This project specifically replaces the electrical distribution system associated with substations 3, 4, and 5. It is required to restore quality and reliability to the electrical power system and avoid costly piecemeal repairs. Building 103 is required for the Michoud Assembly Facility to perform its assigned Agency roles and missions.

PROJECT JUSTIFICATION:

The 480V electrical distribution system in Building 103 was originally installed in the 1940ís. Exposed distribution feeders resulting from cracked insulation and "spot" overloads combine to create potential production shutdowns. Existing bus ducts are inaccessible for maintenance. Feeder taps to fan houses lack overcurrent protection. Main distribution and sub-distribution panels and associated breakers are obsolete. Existing grounding does not meet the National

Electric Code (NEC) nor current design standards. An in-house long range electrical plan and a subsequent A/E study recommend upgrade of the 480V power distribution system. This project is needed to provide a safe and reliable 480V electrical distribution system from substations 3, 4, and 5 to the Mechanical Sub-Assembly, Intertank, and Dome Assembly areas of Building 103. It continues the systematic rehabilitation of older high-voltage systems in critical production areas.

IMPACT OF DELAY:

Failure to rehabilitate exposed feeders, hot spots, and improper grounding may likely result in production shutdowns in the Mechanical Sub-Assembly, Intertank, and Dome Assembly areas of the External Tank manufacturing operations.

PROJECT DESCRIPTION:

This project installs new main distribution and sub-distribution power panels and new transformers. New electrical distribution feeders will be routed in cable trays for ease of maintenance. Electrical distribution circuits will be designed to eliminate the need for bus ducts. The new distribution system will be tied into substation switch gear and the old distribution system will be demolished.

PROJECT COST ESTIMATE:

Project Cost Estimate	Unit of Measure	Quantity	Unit Cost	Cost
Electrical	LS	---	---	$2,800,000
Total	**---**	**---**	**---**	**$2,800,000**

LIST OF RELATED GRAPHICS: Figure 1 - Site Plan

OTHER EQUIPMENT SUMMARY: None

FUTURE ESTIMATED CONSTRUCTION FUNDING REQUIRED TO COMPLETE THIS PROJECT: None. However, future CoF funding in the amount of $3,800,000 will be required in FY 1999-2000 to rehabilitate the 480V electrical distribution system in the remaining areas of Building 103.