INEL-95/0477
Revision 1

September 1996

Idaho National Engineering Laboratory

CPP-603 Underwater Fuel Storage Facility Site Integrated Stabilization Management Plan (SISMP)

G. W. Wachs
H. M. Blake
R. E. Cottam
R. D. Denney
R. A. Schiffern

LOCKHEED MARTIN

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Volume I

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Lockheed Martin Idaho Technologies Company
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Prepared for the
U.S. Department of Energy
NMSTG: EM-60
Under DOE Idaho Operations Office
Contract DE-AC07-94ID13223

SUMMARY

The CPP-603 Underwater Fuel Storage Facility (UFSF) Site Integrated Stabilization Management Plan (SISMP) has been developed to describe the activities required for the relocation of spent nuclear fuel (SNF) from the CPP-603 facility. These activities are the only Idaho National Engineering Laboratory (INEL) actions identified in the Implementation Plan developed to meet the requirements of the Defense Nuclear Facilities Safety Board (DNFSB) *Recommendation 94-1 to the Secretary of Energy* regarding an improved schedule for remediation in the Defense Nuclear Facilities Complex. To date, 622 spent nuclear fuel units have been moved from the CPP-603 north and middle water basins, leaving 743 units in the south basin to be relocated from the facility by December 31, 2000. Besides moving fuels from the CPP-603, in 1993 and 1994 more than 300 fuel storage yokes in the north and middle basins were redundantly rigged because of corrosion problems. More than 200 fuel transfers within the north and middle basins were also made to ensure proper spacing of the fuels, and 104 corroded cans containing spent space reactor fuel were repackaged underwater to prevent potential release of their contents. This document is provided to address the relocation activities for the remaining 743 units in the south basin into wet storage pools at building CPP-666 or into dry storage at the Irradiation Fuel Storage Facility (IFSF).

CONTENTS

FIGURES

TABLES

ACRONYMS

ANL-W	Argonne National Laboratory-West
ANP	Aircraft Nuclear Propulsion
APPR	Army Package Power Reactor
ARMF	Advanced Reactivity Measurement Facility
ATR	Advanced Test Reactor
BMI	Battelle Memorial Institute
CCB	Change Control Board
CFR	Code of Federal Regulations
CFRMF	Coupled Fast Reactivity Measurement Facility
DNFSB	Defense Nuclear Facility Safety Board
DOE	Department of Energy
-EM	Office of Environmental Restoration and Waste Management
-HQ	Headquarters
-ID	Idaho Operations Office
EBR	Experimental Breeder Reactor
ECF	Expended Core Facility
EIS	Environmental Impact Statement
FDP	Fluorinel Dissolution Process
FHC	Fuel Handling Cave
FHU	Fuel Handling Unit
FSA	Fuel Storage Area
FY	Fiscal Year
GETR	General Electric Test Reactor
HEPA	High-Efficiency Particulate Air (Filter)
HVAC	Heating, Ventilating, and Air Conditioning
ICPP	Idaho Chemical Processing Plant
IFSF	Irradiated Fuel Storage Facility
INEL	Idaho National Engineering Laboratory
KAPL	Knolls Atomic Power Laboratory
LMITCO	Lockheed Martin Idaho Technologies Company
MTR	Materials Test Reactor
MURR	Missouri University Research Reactor

NMSTG	Nuclear Materials Stabilization Task Group
NRC	Nuclear Regulatory Commission
ORR	Operational Readiness Review
PTS	Progress Tracking System
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
QA	Quality Assurance
SAR	Safety Analysis Report
SIR	Submarine Intermediate Reactor
SISMP	Site Integrated Stabilization Management Plan
SM-1A	Stationary Medium Power Plant
SNAP	System for Nuclear Auxiliary Power
SNF	Spent Nuclear Fuel
SRS	Savannah River Site
TORY	Experimental Propulsion Test Reactor
TRIGA	Training, Research and Irradiation Reactor-General Atomics
UFSF	Underwater Fuel Storage Facility
VBWR	Vallecitos Boiling Water Reactor
WAPD	Westinghouse Atomic Power Development

CPP-603 Underwater Fuel Storage Facility Site Integrated Stabilization Management Plan (SISMP)

1. INTRODUCTION

On May 26, 1994, the Defense Nuclear Facilities Safety Board (DNFSB) unanimously approved *Recommendation 94-1 to the Secretary of Energy*, regarding an "Improved Schedule for Remediation in the Defense Nuclear Facilities Complex." These DNFSB recommendations were aimed at imminent hazards which could arise if material management problems are not corrected. The DNFSB recommended that the Department of Energy (DOE):

- Formulate an integrated program plan to convert the affected materials to forms or conditions suitable for safe interim storage
- Establish a research program to fill any gaps in the information base needed for choosing among the alternate processes to be used in safe conversion of various types of fissile materials to optimal forms for safe interim storage and long-term dispositioning
- Maintain those facilities that may be needed for the future handling and treatment of nuclear materials in a usable state.

In a response to DNFSB Recommendation 94-1, dated August 31, 1994, Secretary of Energy Hazel R. O'Leary committed the DOE to develop an Integrated Program Plan which "includes a systems engineering approach to maximize the integration of facilities and capabilities while minimizing worker exposures and additional waste; research programs required to fill any gaps in the technological information base; identification of those facilities that may be needed for future handling and treatment of these materials; [and] ensuring operational readiness in accordance with DOE Order 5480.31 [Startup and Restart of Nuclear Facilities]."

The DNFSB Recommendation 94-1 Implementation Plan, issued February 28, 1995, was released by DOE as its integrated program plan and provides the schedules and major milestones for achieving the recommended objectives. This Implementation Plan required each affected site to prepare a Site Integrated Stabilization Management Plan (SISMP) that documents the activities at each site to prepare a response to the objectives and requirements of the Implementation Plan. This document is an update of the original INEL SISMP issued in October 1995.

1.1 Legal and Regulatory Drivers

Prior to the release of the DNFSB Recommendation 94-1 Implementation Plan, in response to environmental questions raised by the State of Idaho concerning the shipment and subsequent storage of Fort St. Vrain spent nuclear fuel (SNF) at the Idaho Chemical Processing Plant (ICPP), Senior United States District Judge H. L. Ryan issued an Opinion and Order, dated June 28, 1993, requiring DOE to prepare an

Environmental Impact Statement (EIS), evaluate alternatives to Idaho National Engineering Laboratory (INEL) SNF storage, and cease further input of SNF at the INEL until the comprehensive EIS is completed, reviewed, and any challenges to the EIS are resolved. Subsequently, Hazel R. O'Leary, Secretary of Energy; John H. Dalton, Secretary of the Navy; and Cecil B. Andrus, Governor of the State of Idaho, entered into an agreement on August 9, 1993, proposing modifications to the U.S. District Court's Opinion and Order of June 28, 1993. On December 22, 1993, Judge H. L. Ryan issued an order ratifying the proposed modifications. Removal of the CPP-603 Underwater Fuel Storage Facility (UFSF) from service on a schedule mandated by specific milestones were included in the agreed modifications. The milestones are also identified by DOE-HQ in the DNSFB Recommendation 94-1 Implementation Plan with milestone numbers. These milestones are provided with the current status as follows:

Milestone #	Activity	Status
Completed before milestone established	Establishment of the Facility Safety Authorization Basis—(completed, including rerigging of storage equipment, System for Nuclear Auxiliary Power [SNAP] fuel canning, video inspection of all spent fuel and storage equipment, and seismic evaluation)	completed
Completed before milestone established	Movement of first 189 units from the North and Middle Basins to CPP-666 by September 30, 1994	completed July 26, 1994
IP-3.6-045	Movement of South Basin Fuels—Begin by June 1, 1995	completed May 12, 1995
IP-3.6-043	Movement of second 189 units from the North and Middle Basins to CPP-666 by December 31, 1995	completed September 11, 1995
IP-3.6-044	Removal of all SNF from North and Middle Basins by December 31, 1996	completed August 2, 1996
IP-3.6-046	Removal of all SNF not requiring overpacking by December 31, 1998	scheduled to start October 1, 1996
IP-3.6-047	Dry Storage Overpacking Station construction and startup by December 31, 1998	installed, currently performing Readiness Assessment (RA)
IP-3.6-005	SNF removal from the CPP-603 South Basin by December 31, 2000	scheduled for completion March-Oct. 1998

1.2 Fuel Management Considerations

Major changes in the priorities and mission of the INEL Spent Nuclear Fuel Program have occurred over the last 5 years. INEL SNF storage systems were being operated using materials and storage arrangements designed to support SNF reprocessing, that is, short periods of temporary underwater storage.

Interim planning for these INEL facilities has been adjusted to the revised mission of safe, cost effective, interim storage and preparation of SNF for shipment to the national repository in an integrated program that also is consistent with overall INEL waste stream strategic planning. The INEL is committed to prompt resolution of identified SNF facility safety vulnerabilities via SNF removal from aging underwater storage pools and consolidation into qualified existing storage facilities or into new modular dry storage that also supports (if possible) the mission to prepare the SNF for shipment to a repository. These vulnerabilities have been identified in the DOE Plan of Action to Resolve Spent Nuclear Fuel Vulnerabilities (Phase III Report, dated October 1994), and progress toward completing the resolutions of these vulnerabilities are reported quarterly to DOE management.

1.3 Systems Engineering Validation

Systems engineering is a top down analysis of requirements, alternatives, and potential actions to analytically determine the best approach to performing difficult or complicated tasks. Systems engineering is being used at the DOE National SNF Program level to identify the DOE program requirements and functions and has been used within the INEL SNF Program to establish the detailed plans and schedules. Systems engineering analysis will continue to be used to validate or potentially adjust the SNF management approach being presented here.

1.4 General Organizational Responsibilities and Interfaces

Multiple organizations are involved in supporting the activities identified in this SISMP. Within the DOE-Idaho Operations Office (DOE-ID), the Spent Fuel Program manager is responsible for the overall management, administration, and performance of the INEL Spent Nuclear Fuel Program to ensure that long range planning, budgeting, and integration is accomplished to support the assigned SNF mission at the INEL. The DOE-ID Facility Manager for the ICPP is responsible for implementation of the SNF program at the required levels of quality, safety, and environmental compliance, and within established technical, cost, and schedule baselines.

Lockheed Martin Idaho Technologies Company (LMITCO) is the operating contractor for most INEL programs and facilities, and has overall responsibility for management and operations. Within LMITCO, the Nuclear Operations branch is responsible for all nuclear operations programs. Under this branch, the National Spent Fuel and Related Programs directorate includes the INEL Spent Nuclear Fuel Program Department which is responsible for the INEL SNF long range planning and integration activities, for technology development, and for providing new facilities which have been identified to be necessary for the SNF mission. Also under the Nuclear Operations branch is the Nuclear Fuel Operations directorate which includes the Fuel Operations Department and associated supporting departments. The Fuel Operations Department is responsible for operation and maintenance of SNF facilities and implementation of the INEL SNF program. An organizational chart of the Nuclear Operations branch as it involves SNF is provided in Figure 1-1.

Interface with the DOE Nuclear Materials Stabilization Task Group (NMSTG), which is responsible for integration of the DNFSB Recommendation 94-1 activities across all DOE sites, is being provided by the INEL Spent Nuclear Fuel Program department via development of this INEL SISMP and through quarterly status reports. Personnel assigned to specifically support the NMSTG Integration Working Group and

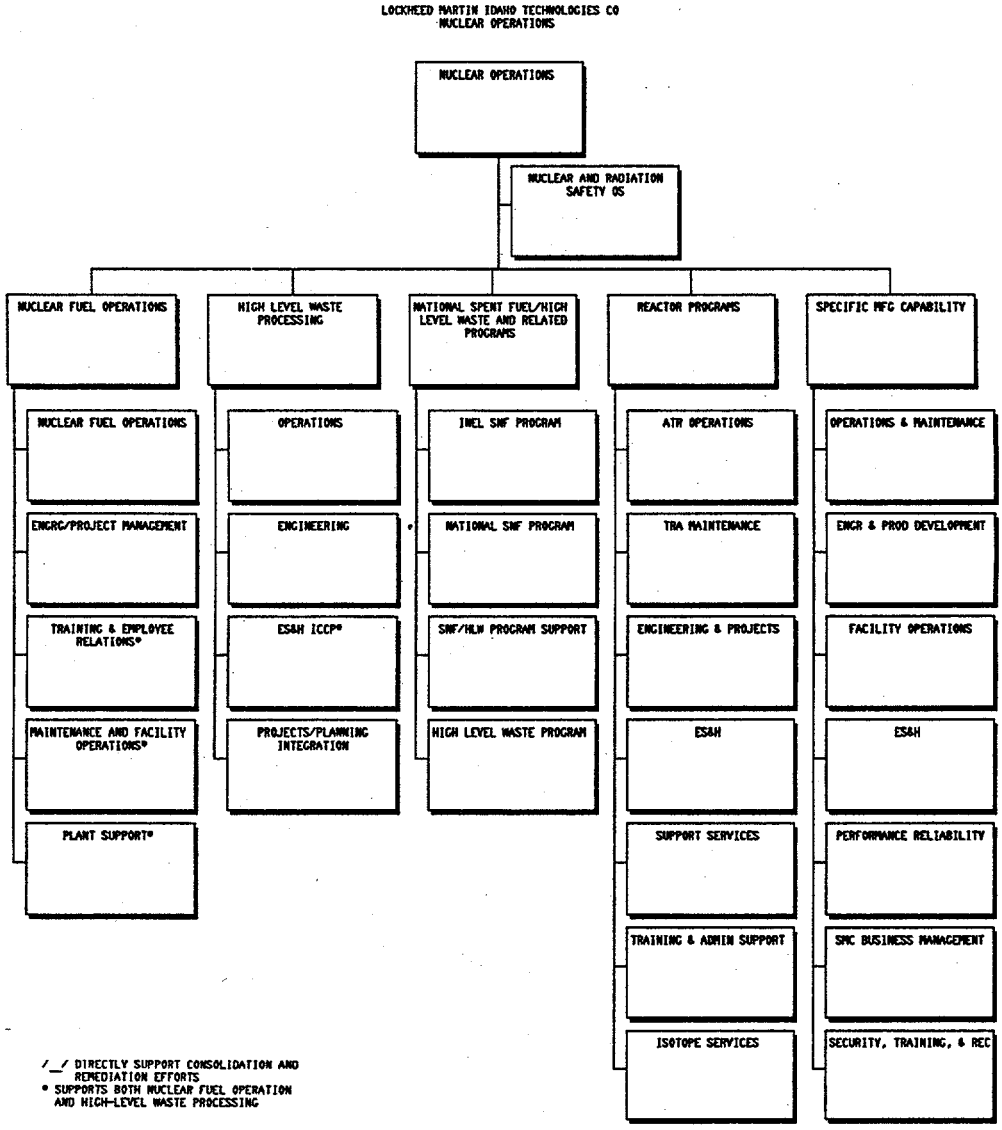

Figure 1-1. Nuclear Operations organizational chart.

Research Committee are also under the direction of the INEL Spent Nuclear Fuel Program. Table 1-1 lists the organizational title and telephone number for the various CPP-603 program interfaces.

1.5 Progress Control Reporting

INEL SNF programs are mostly funded through the DOE Office of Environmental Management (DOE-EM), and more specifically through the Office of Nuclear Material and Facility Stabilization (EM-60). The Office of Environmental Management utilizes Activity Data Sheets (ADS) to define major work activities for its programs. The technical work scope and budgeted costs are developed and approved annually through a 7-year budget call at the EM-60 level, and then more detailed plans are approved by DOE-ID just prior to initiating each fiscal year. Progress and reporting milestones are negotiated with DOE-EM and DOE-ID and are tracked in the DOE-EM Progress Tracking System (PTS). ADS level changes are approved by DOE-ID.

For the activities identified in this SISMP, progress on the major milestones and changes to the detailed schedules are provided quarterly to the NMSTG by the INEL Spent Nuclear Fuel Program.

Quarterly status reports on the corrective actions identified in the DOE Plan of Action to Resolve Spent Nuclear Fuel Vulnerabilities, which includes the same CPP-603 SNF removal schedules as this SISMP, are provided to DOE-ID, DOE Headquarters (-HQ) EM-60 and EM-67 (the Office Spent Fuel Management) by the INEL Spent Nuclear Fuel Program.

Table 1-1. Implementation plan program interfaces.

Organization or Activity Title	Personnel	Company	Phone
Nuclear Operations Vice President	H. B. Barron	LMITCO	208-526-4437
Nuclear Fuel Directorate	T. A. Mathews	LMITCO	208-526-8710
Nuclear Fuel Operations Department	J. E. Kaylor	LMITCO	208-526-3483
INEL Spent Nuclear Fuel Program	A. P. Hoskins	LMITCO	208-526-4620
Operations Manager ICPP	W. D. Jensen	DOE-ID	208-526-7500
Operations Technology Support	C. R. Enos	DOE-ID	208-526-0108
INEL SNF Program	R. C. Stump	DOE-ID	208-526-1448
INEL 94-1 Implementation Plan Manager	W. L. Scott	DOE-ID	208-526-8184

2. FACILITIES PLAN

The purpose of this section is to discuss what facilities and facility capabilities are being used to undertake the stabilization activities. The facilities involved in the CPP-603 SISMP include the CPP-603 Underwater Fuel Storage Facility (UFSF), the CPP-666 Fuel Storage Area (FSA), and the Irradiated Fuel Storage Facility (IFSF) which is part of the CPP-603 facility. A brief description of the facilities is provided with associated work activities necessary for continued operations and detailed work plans and processes for completing the SISMP objectives. In addition, a section is included to discuss potential issues and problems.

The DNFSB's 1994 recommendation that remediation be completed on the CPP-603 basins "within three to eight years" was noted. However, an agreement, manifested in a Court Order, was reached between DOE, Navy, and the State of Idaho in August 1993, wherein all SNF would be removed from the CPP-603 wet storage basins by December 31, 2000, based on the best approach possible, under the technical circumstances. CPP-603 activities are being undertaken on a schedule to meet the court order-mandated milestones or to accelerate the schedule if possible.

2.1 CPP-603 Underwater Fuel Storage Facility

The CPP-603 UFSF at the ICPP comprises of three interconnected underwater fuel storage basins (North, South, and Middle), and associated fuel transfer stations, as shown in Figure 2-1. Various types of nuclear fuels are handled and stored in the underwater basins at the facility. The facility is supported by cranes, two cask loading and unloading areas, and truck loading and unloading bays adjacent to the basins. The IFSF, see Section 2.3, is an extension of this facility. A cask decontamination pad is located near the South basin. In the past, SNF was received and shipped out through two transfer stations containing cask loading/unloading pits. SNF is handled in units known as fuel handling units (FHUs) or "storage units." FHUs may consist of one or more individual pieces of fuel packaged into a single handling unit. Since the milestones to remove fuel from the North and Middle Basins are now completed, the remaining FHUs in the CPP-603 Underwater Storage Facility are all in underwater racks in the South Basin. Fuel will be transferred out of the South basin using the south basin transfer station, which is located adjacent to the south basin. Shielded casks or chargers to transfer fuel out of the South Storage basin are lowered into the transfer station using overhead cranes. The fuel is then loaded into the cask or charger. The cask is then raised above the water surface and drained over the pool for a brief period prior to transfer to the wipe down area, where it is cleaned and wiped to meet safe shipment requirements. The pool water is maintained by a continuously circulated cleanup system that includes sandfilters, ion exchange columns and an ultraviolet light. The basins are constructed of unlined concrete. The overhead structure consists of framework covered with transite siding. There is no ventilation control system.

2.2 CPP-666 Fuel Storage Area

The CPP-666 Fuel Storage Area is an underwater fuel storage facility comprising six storage pools, two unloading pools and two isolation pools, a fuel transfer canal, an enclosed fuel cutting pool, and a direct fuel transfer route into the Fluorinel Dissolution Process (FDP) Cell, as shown in Figure 2-2. The pools are stainless steel lined, with a leak detection system. The facility has an extensive water chemistry control system and a heating, ventilation, and air conditioning (HVAC) confinement system. Fuel can be received at the facility by truck or straddle carrier. Cask transport from the trucks into one of two fuel unloading pools is

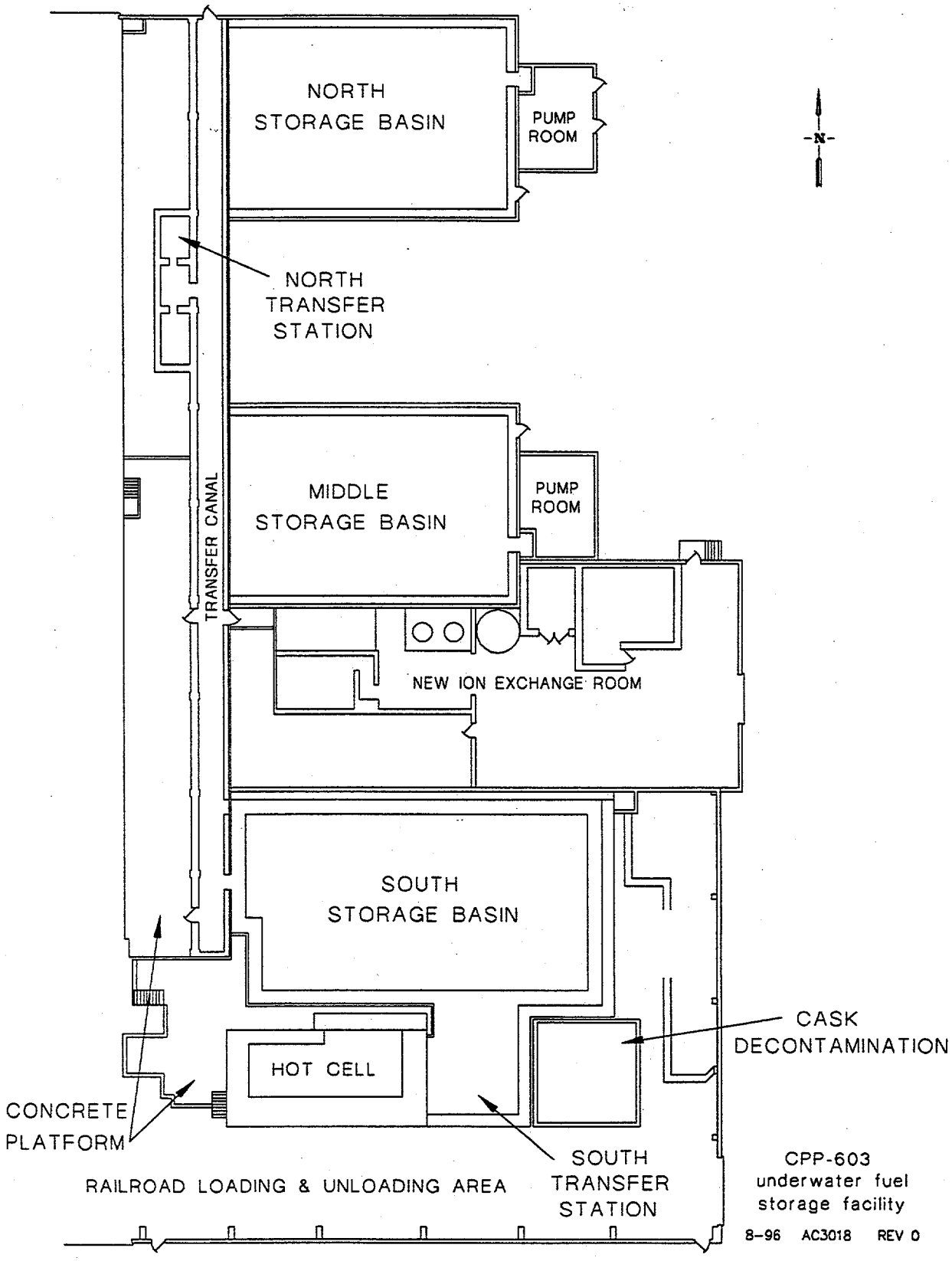

Figure 2-1. CPP-603 underwater fuel storage facility.

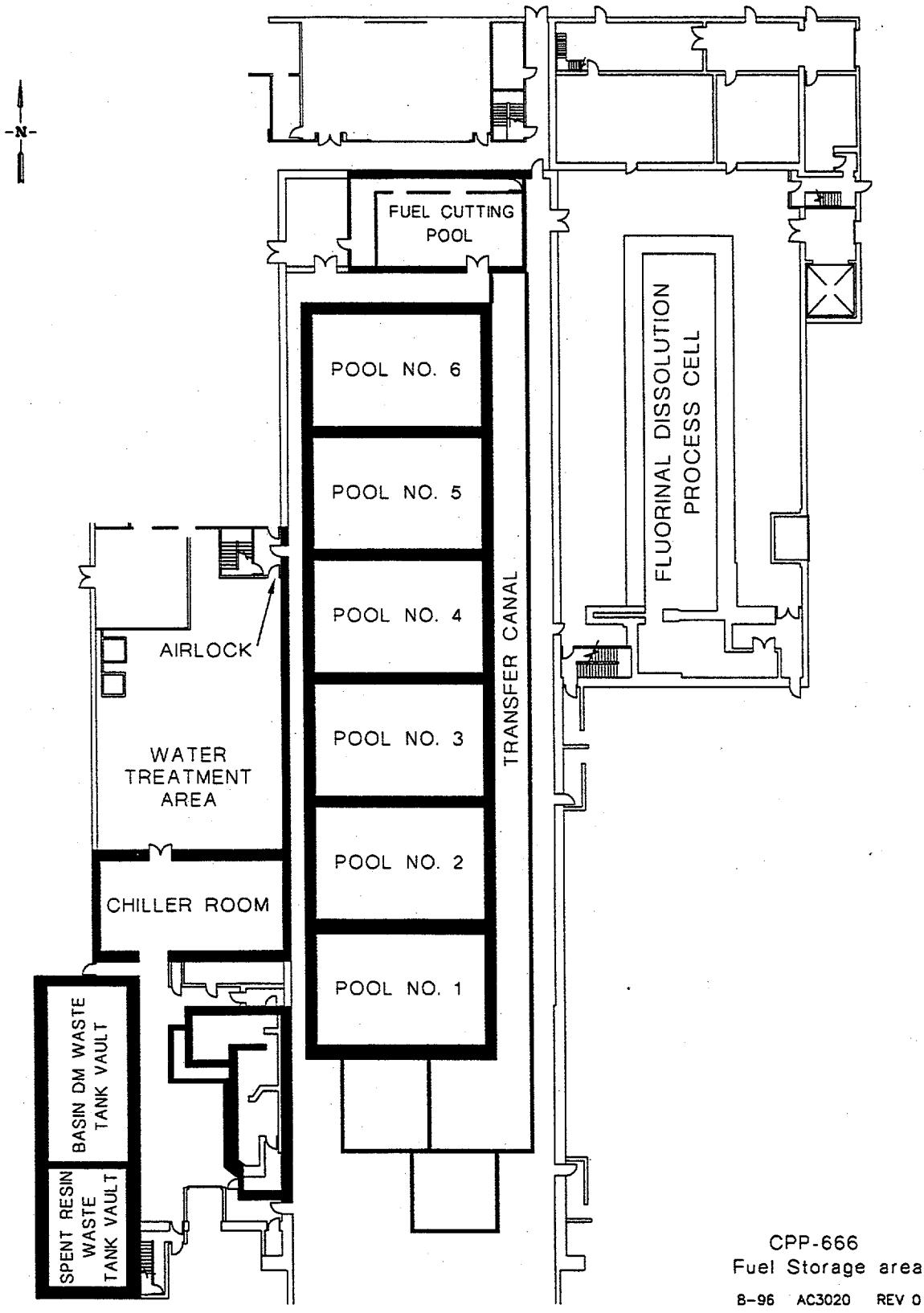

Figure 2-2. CPP-666 fuel storage area.

performed using a 130-ton bridge crane (unloading pools are 19 × 19 × 36 ft deep and 20 × 24 × 44 ft deep). The six main storage pools are each 31 × 46 ft with depths of either 31 or 41 ft, serviced by two 10-ton bridge cranes. The 10 × 221 × 31 ft deep transfer canal allows underwater transfer of materials between storage locations. In addition, there are two isolation pools (8 × 19 ft and 8 × 24 ft) and a fuel cutting pool (43 × 16 ft). Storage of fuel at the facility started in 1984. All fuels in storage are in free standing racks which provide criticality-safe storage via geometric spacing. The facility currently receives fuel from Naval, Advanced Test Reactor (ATR) and CPP-603 sources.

CPP-666 operations currently involves the receipt of approximately 272 SNF shipments per year (60 Naval, 12 ATR, 200 CPP-603) in addition to maintenance of pool storage conditions, fuel testing, and other functions. Continued operation requires provisions for a number of support functions to ensure that the facilities are operated safely and effectively.

The CPP-666 facility is the INEL receiving facility for most SNF which has significant decay heat. It also houses SNF that may react with a dry storage environment. Careful operations coordination at CPP-666 will be required to manage CPP-603 inputs and other potential SNF receipts without impacting the receipt of Navy and ATR fuel for cooling.

2.3 CPP-603 Irradiated Fuel Storage Facility

The Irradiated Fuel Storage Facility (IFSF), see Figure 2-3, was built in 1973 as an extension to CPP-603. The facility was designed to provide handling capability and dry vault storage capacity for graphite matrix fuels, specifically the Ft. St. Vrain and Peach Bottom (PB) Core II fuel. The Fuel Handling Cave (FHC) is used to transfer SNF into the IFSF. The handling cave contains a shielded transfer car to receive the shipping casks loaded with fuel elements or canisters, a shuttle bin to place SNF in storage, 15 ports or cavewells to facilitate fuel handling and to provide for temporary storage, and fuel handling equipment (i.e., a crane, PaR manipulator, remote equipment). There are 636 storage containers in the IFSF fuel storage area; of these, over 300 are empty and available for additional fuel receipts. The containers are 18 inches in diameter and eleven feet tall. The IFSF has a forced air cooling system that has High-Efficiency Particulate Air (HEPA) filtration.

An agreement between DOE and the State of Idaho[a], stated "To ensure safe interim storage, the State of Idaho agrees to permit the Department to dry can and dry store the eight fuel types.....Prior to the transfer of fuel from CPP-603 basins to dry storage, the Department agrees to demonstrate to the State of Idaho's satisfaction: (1) the acceptability of selected dry storage facilities; and (2) the successful operation of the dry canning station." The eight fuels listed were ATR, BMI-SPEC, EBR-II, HFBR, MURR, ORR, TRIGA-AL and WAPD.

Due to incomplete documentation on seismic adequacy of the IFSF, structural evaluations were performed to provide current and comprehensive analyses in accordance with DOE Order 5480.28, "Natural Phenomena Hazards Mitigation". An independent evaluation of the structural analyses was performed to quantify the extent of damage from a Design Bases Earthquake (DBE). The evaluation concluded that

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a. Agreement Regarding the Transfer of CPP-603 Spent Fuel, Agreement No. GM-07-96ID11210, executed by John M. Wilcynski and Philip E. Batt, effective April 3, 1996

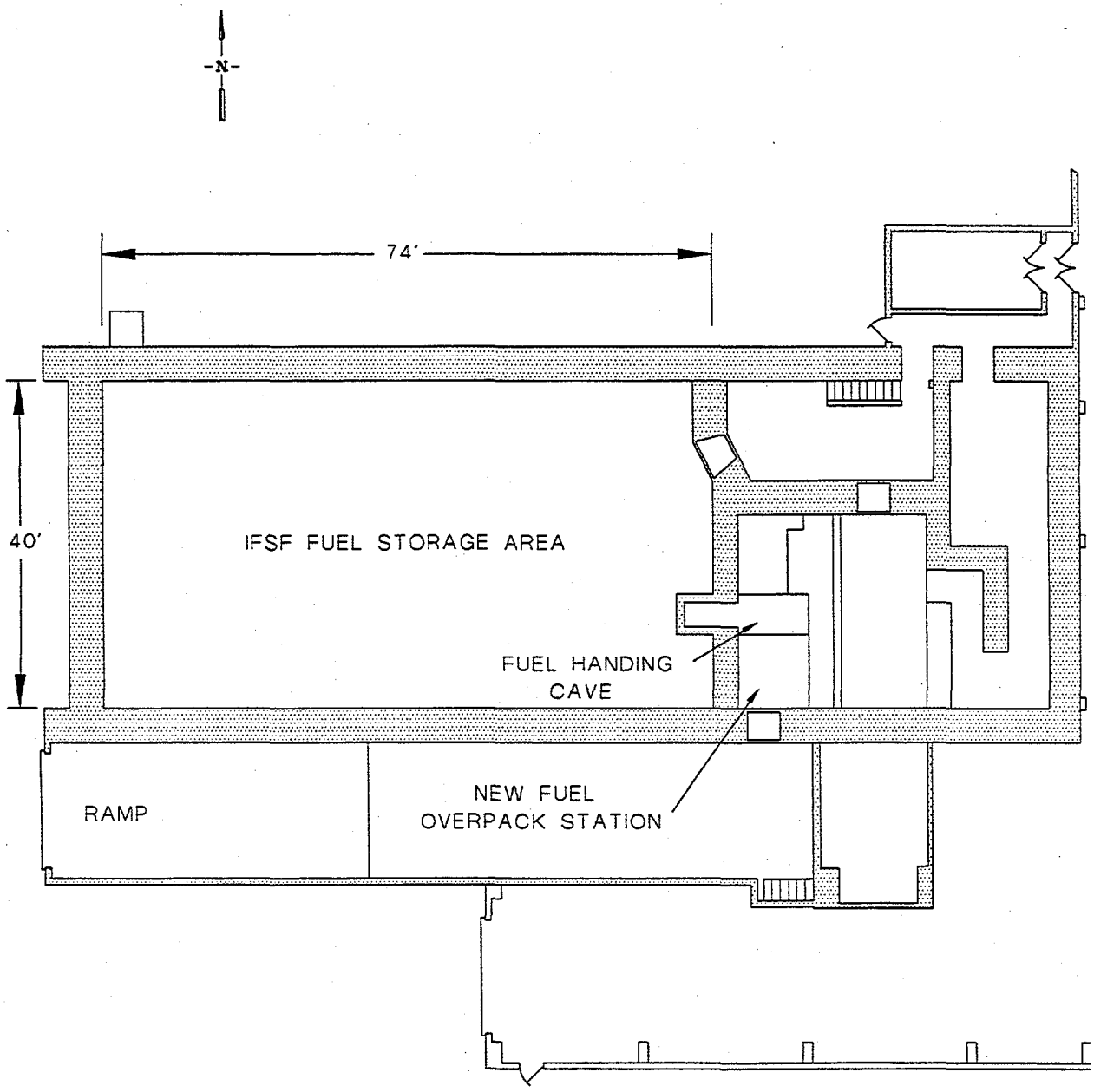

Figure 2-3. CPP-603 irradiated fuel storage facility.

collapse, either partial or total, of the facility is not anticipated with damage limited to concrete cracking. Based on these evaluations, fuel was determined to remain in a safe configuration during a DBE. LMITCO is actively pursuing design of facility modifications to bring IFSF superstructure into compliance with DOE seismic requirements in FY-97. In the interim, the IFSF will continue to be used for present and planned additional dry storage.

As part of the CPP-603 fuel relocation (see milestone *IP-3.6-047*), a Dry Storage Overpacking Station (canning station) is planned because of safety considerations involving certain fuels that require emplacement into dry storage. The canning station has been installed in the fuel handling cave of the IFSF. Successful systems operation (SO) testing of the canning station was completed on May 28, 1996. DOE and LMITCO will perform Readiness Assessments (RA) of the canning station operation in accordance with DOE Order 5480.31, "Startup and Restart of Nuclear Facilities". As part of the operational readiness process, LMITCO performed a management self-assessment (M.S.A.) and is currently resolving identified issues.

2.4 Remediation Objectives

The overall remediation objective for CPP-603 is to complete the relocation of the remaining fuel from the south basin to the CPP-666 facility, or to dry storage (approved for eight fuel types).

2.4.1 Remediation Process

Following the completion of the first 199 SNF transfers, the remaining placement of CPP-603 SNF into acceptable containers and removal from CPP-603 was divided into eight phases depending on fuel type, configuration and storage approval status. Each relocation phase required an engineering baseline development, which includes design criteria, design engineering, possible mock-ups, procurement, fabrication and testing, tool validation, operator training, procedures, criticality safety evaluations, safety assessments, technical standard revisions and readiness assessments. Fuel movements began upon completion of these engineering development activities. Figure 2-4 provides a simplified flow diagram of those planned 8 phases. The only activities remaining are associated with relocating fuel from the South Basin (Phases VI, VII, and VIII).

The intact SNF will be transferred to the CPP-666 facility utilizing available transport casks. Each fuel type will require the design and procurement of specific storage buckets and tools to accomplish the movements, and in turn, require additional support documentation including appropriate safety analysis, technical standards, operating procedures, training, and readiness assessments prior to transfer to CPP-666. The eight fuel types approved by the State of Idaho (ATR, BMI-SPEC, EBR-II, HFBR, MURR, ORR, TRIGA-AL and WAPD) will be relocated to the dry storage facility at IFSF. Moving these fuels into dry storage will inhibit further corrosion of the existing fuel containers or cladding. This will be accomplished by placing the fuel or fuel cans in new canisters that will contain fuel, fuel fragments and fission, activation, and corrosion products. After drying the loaded canisters at the canning station, the canisters will be emplaced into dry storage racks at the IFSF.

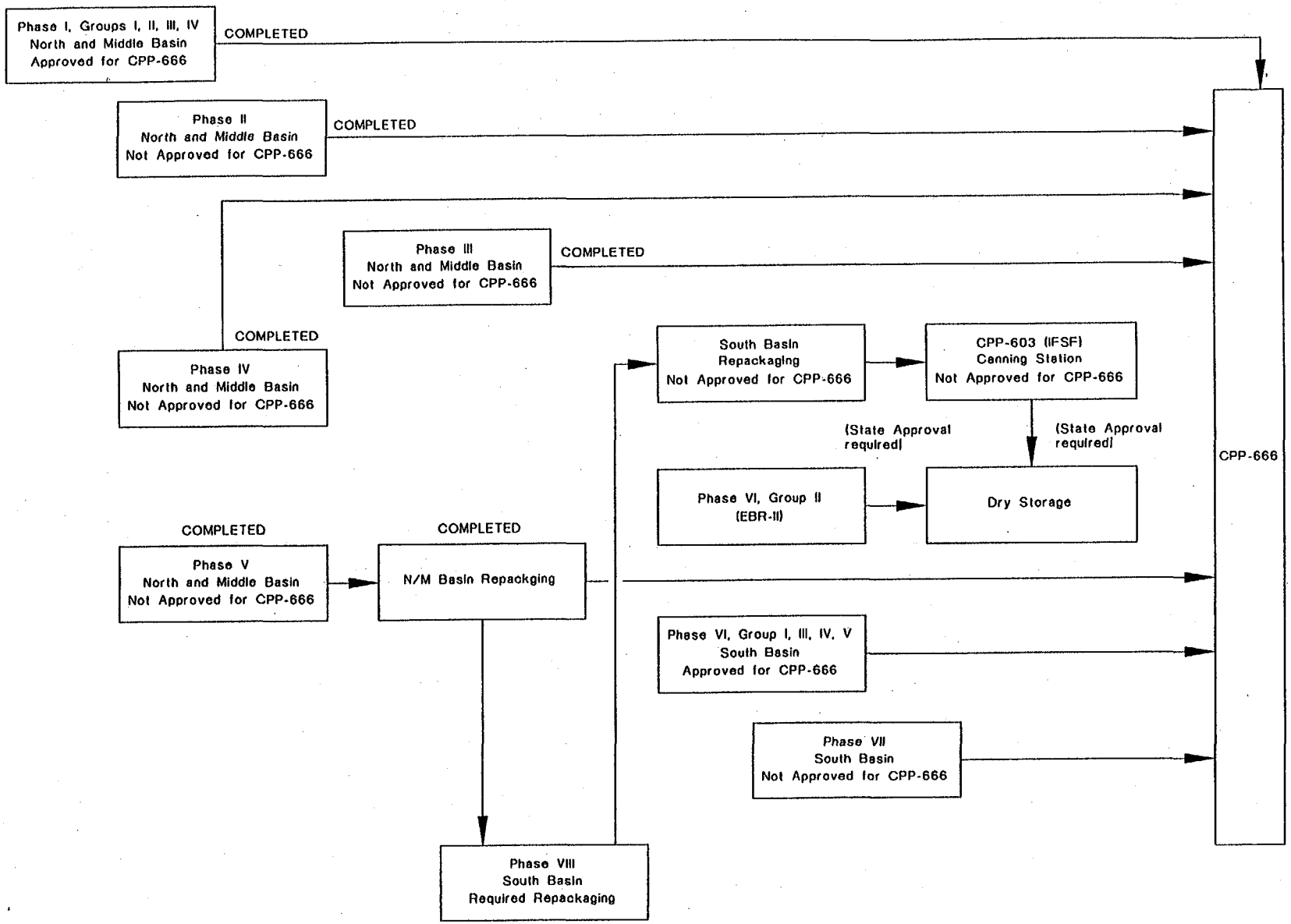

Figure 2-4. CPP-603 fuel movements (by phases) diagram.

2.5 Technology Development

Fuels located at the CPP-603 facility were not prepared for long-term storage. Due to the condition of some SNF storage equipment (cans, yokes, racks) and aluminum clad fuel stored in CPP-603, the main issues are associated with assuring safe lifting, handling, and packaging of the SNF within the CPP-603 facility. Corrosion is the primary constraint complicating the movements of the SNF from CPP-603. Corrosion may deteriorate canned fuels resulting in the possibility of losing containment, increasing challenges related to retrievability if the can is damaged, and accelerating corrosion if water has leaked into the cans. Modifications to existing relocation support handling techniques may be required because of the degraded condition of the SNF does not allow in all cases standard methods for removing the SNF. Technology development areas are primarily focused on the characterization of the fuels:

- Determining the packaging and storage requirements for SNF with potentially failed cladding (completed)
- Providing complete drying of the SNF without unacceptable chemical reactions through validating drying procedures
- Removing organic materials from SNF to eliminate pressure generating radiolysis reactions
- Inspection of cans for water intrusion (completed) through development of underwater capabilities for ultrasound and eddy-current nondestructive testing
- Improving video imaging techniques to evaluate alloy mismatch resulting in galvanic corrosion and stress concerns

As these inspections/characterizations are completed throughout the relocation process, potential modifications are applied to existing equipment to assure safe handling during the relocation of fuels to appropriate wet or dry locations.

2.6 Issues and Problems

There are no identified issues or problems identified for the relocation of the remaining fuels from the south basin in CPP-603.

2.7 Schedules

The summary level and detailed schedules for the CPP-603 relocation activities are presented in Volume II of this SISMP. The schedules are based on the FY-97 and FY-98 (future) costs accounts level schedules submitted under Activity Data Sheets. The CPP-603 south basin relocation project is scheduled to be completed in FY-1998, two years in advance of the final milestone date. Each of these schedules is reviewed by the LMITCO project manager on a weekly basis and updated monthly. Changes are allowed to the working schedules for those activities that are not directly effecting the approved milestones. Required milestone changes are approved through the Change Control Board (CCB) process.

Volume II is aligned with the guidelines provided for developing SISMP's meeting the requirements established by the DNSFB Recommendation 94-1 Implementation Plan, except for the provision of showing a critical path for the project, because the preparatory and fuel relocation activities are performed concurrently for each of the phases, a critical path could not be developed. Provided are summary level schedules, detailed level schedules involving fuel movement preparations, and planned fuel relocation progress curves. The progress curves include: 1) a Time Scaled Logic Diagram depicting a time line schedule, 2) and a progress curve provided in Metric Tonne Heavy Metal (MTHM) for each of the fuel type phases identified with the time scaled logic diagram

2.8 Costs

The costs for completion of the CPP-603 fuel transfers as outlined in the DNFSB Recommendation 94-1 Implementation Plan are being revised based on the schedules shown in Volume II and will be provided in each fiscal year's Activity Data Sheets (ADS) for review by DOE-ID.

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Prepared for the
U.S. Department of Energy
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Under DOE Idaho Operations Office
Contract DE-AC07-94ID13223

SUMMARY LEVEL SCHEDULE
(Fuel Moves by Phase)

LITCO

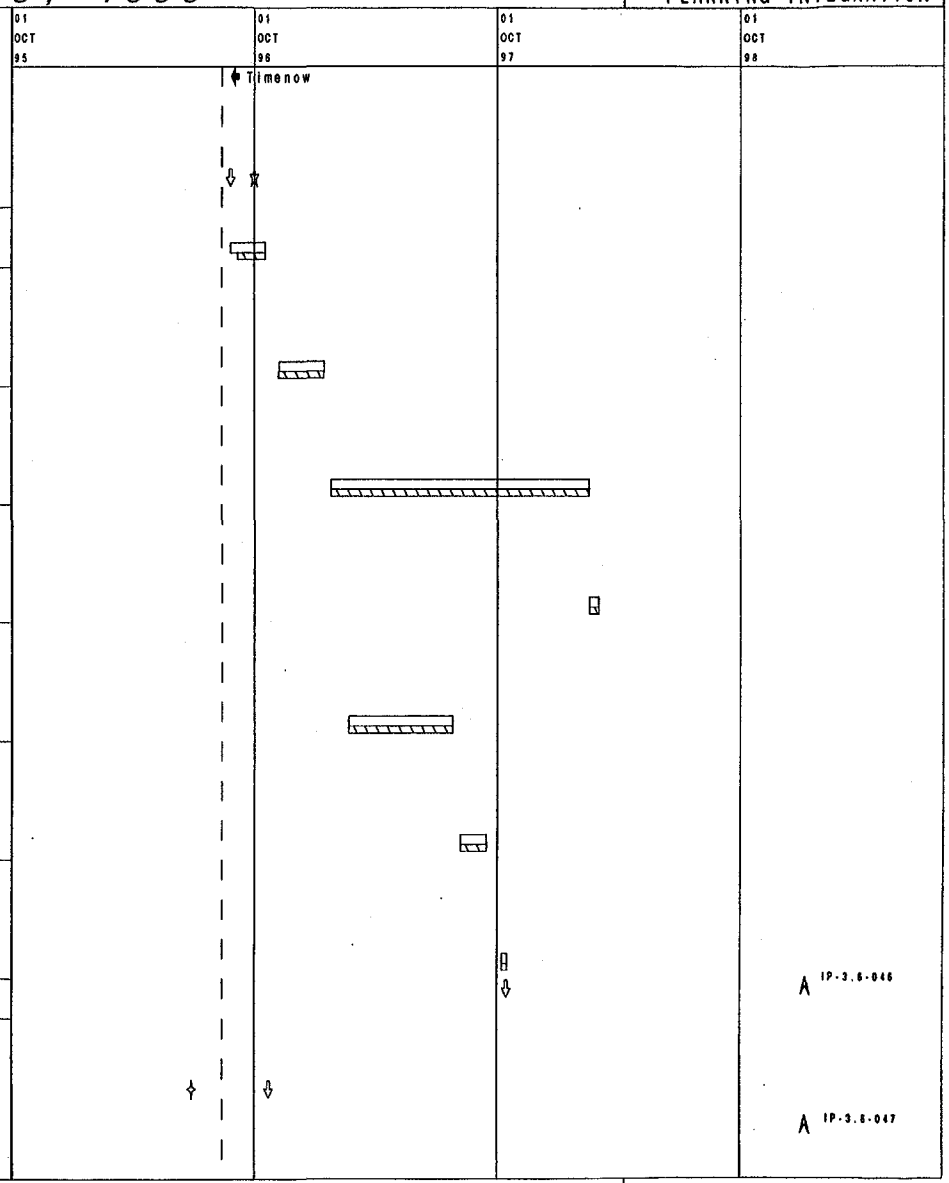
Report: G270B
Project: CPP603
Time Now: 13AUG96

CPP-603 SOUTH BASIN FUEL TRANSFERS ONLY
SUMMARY SCHEDULE

AUG 15, 1996

Prepared by:
PLANNING INTEGRATION

	E Start / B Start	E Finish / B Finish
12311122 CPP-603 SOUTH BASIN		
1.2.3.1.1.1.2.2.3.2.1 PHASE VI - GROUP 4 FUEL TRANSFERS		
▶ *PHASE VI - GROUP 4 NAVY (DIG-1 Half Clusters)*		
RECOMMENCE FUEL TRANSFERS CPP-603 SOUTH BASIN	26AUG96	26AUG96
	01OCT96	*01OCT96*
FUEL TRANSFERS		
FUEL TRANSFER - PHASE VI GROUP 4	26AUG96	17OCT96
	06SEP96	*17OCT96*
1.2.3.1.1.1.2.2.3.2.2 PHASE VI - GROUP 5 FUEL TRANSFERS		
▶ *PHASE VI - GROUP 5 NAVY (Sections, ect)*		
FUEL TRANSFERS		
FUEL MOVEMENTS - PHASE VI GROUP 5	08NOV96	14JAN97
	07NOV96	*13JAN97*
1.2.3.1.1.1.2.2.2.2.1 PHASE VI - GROUP 2 FUEL TRANSFERS		
▶ *PHASE VI - GROUP 2 EBR II*		
FUEL TRANSFERS		
FUEL TRANSFERS - PHASE VI GROUP 2 EBR-II	25JAN97	15FEB98
	25JAN97	*15FEB98*
1.2.3.1.1.1.2.2.2.2.2 PHASE VI - GROUP 3 FUEL TRANSFERS		
▶ *PHASE VI - GROUP 3 EBR II (Leakers)*		
FUEL TRANSFERS		
FUEL TRANSFERS - PHASE VI GROUP 3	16FEB98	01MAR98
	16FEB98	*01MAR98*
1.2.3.1.1.1.2.2.4.2.1 PHASE VII - GROUP 1 FUEL TRANSFERS		
▶ *PHASE VII - GROUP 1 (Misc. Cans(SNAP/AI, TORY-IIA))*		
FUEL TRANSFERS		
FUEL TRANSFER - PHASE VII GROUP 1	20FEB97	25JUL97
	20FEB97	*25JUL97*
1.2.3.1.1.1.2.2.4.2.2 PHASE VII - GROUP 2 FUEL TRANSFERS		
▶ *PHASE VII - GROUP 2 (TRIGA-SST)*		
FUEL TRANSFERS		
FUEL TRANSFER - PHASE VII GROUP 2	07AUG97	14SEP97
	07AUG97	*14SEP97*
1.2.3.1.1.1.2.2.4.2.3 PHASE VII - GROUP 3 FUEL TRANSFERS		
▶ *PHASE VII - GROUP 3 (Buffalo Pulstar, GETR)*		
FUEL TRANSFERS		
FUEL TRANSFER - PHASE VII GROUP 3	08OCT97	15OCT97
	08OCT97	*15OCT97*
REMOVAL OF ALL SNF W/O OVERPACKING COMPLETED IP-3.6-046	15OCT97	15OCT97
	30DEC98	*30DEC98*
1.2.3.1.1.1.2.2.1.1.1 PHASE VIII - GROUP 1 PREPARATIONS		
▶ *PHASE VIII - GROUP 1 (ALUMINUM PLATE FUEL)*		
CONSTR./START-UP DRY STORAGE CANNING STATION	23OCT96	23OCT96
	28JUN96	*28JUN96*
IP-3.6-047	*30DEC98*	*30DEC98*



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LITCO

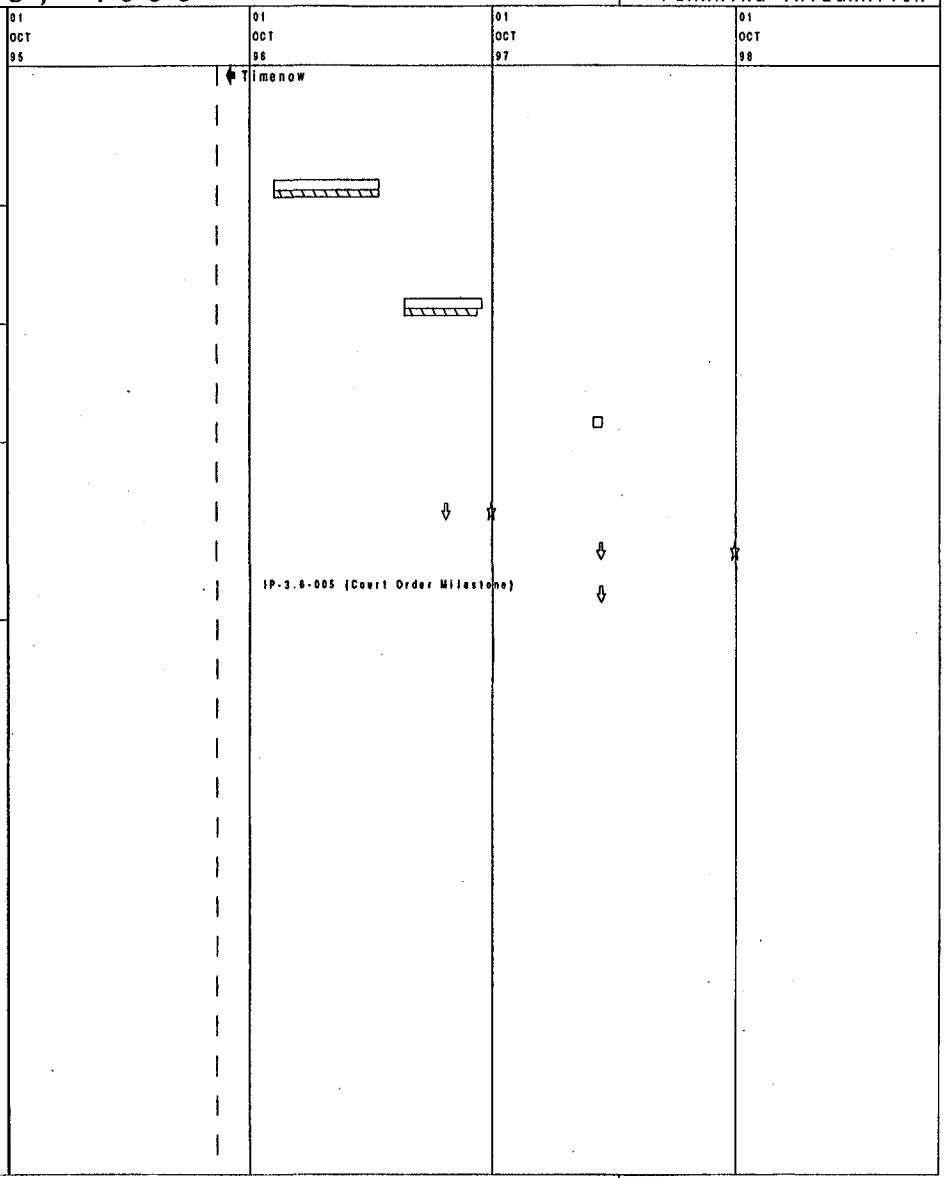
Report: G270B
Project: CPP603
Time Now: 13AUG96

CPP-603 SOUTH BASIN FUEL TRANSFERS ONLY SUMMARY SCHEDULE

AUG 15, 1996

Prepared by:
PLANNING INTEGRATION

	E Start / B Start	E Finish / B Finish
1.2.3.1.1.1.2.2.1.2.1 PHASE VIII - GROUP 1 FUEL TRANSFERS		
▶ PHASE VIII - GROUP 1 (ALUMINUM PLATE FUEL) FUEL TRANSFERS		
DRY CANNING (to IFSF)	07NOV96	12APR97
	07NOV96	*12APR97*
1.2.3.1.1.1.2.2.4.2.4 PHASE VIII - GROUP 2 FUEL TRANSFERS		
▶ PHASE VIII - GROUP 2 (ALUMINUM TRIGA, WAPD, BMI-SPEC) FUEL TRANSFERS		
DRY CANNING (to IFSF)	22MAY97	14SEP97
	22MAY97	*07SEP97*
1.2.3.1.1.1.2.2.4.2.5 PHASE VIII - GROUP 3 FUEL TRANSFERS		
▶ PHASE VIII - GROUP 3 (SIR, & GFO's) FUEL TRANSFERS		
DRY CANNING (to IFSF)	02MAR98	14MAR98
▶ PHASE VIII - GROUP 3 (SIR, & GFO's)		
COMPLETE TRANSFER OF 465 FHU's FROM S. BASIN	24JUL97	24JUL97
	30SEP97	*30SEP97*
COMPLETE TRANSFER OF REMAINING 270 FHU's	14MAR98	14MAR98
	30SEP98	*30SEP98*
SNF from CPP-603 FUEL STORAGE BASINS COMPLETE IP-3.6-005	14MAR98	14MAR98
	31DEC00	*31DEC00*



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DETAILED LEVEL SCHEDULE
(Fuel Moves by Phase)

LITCO

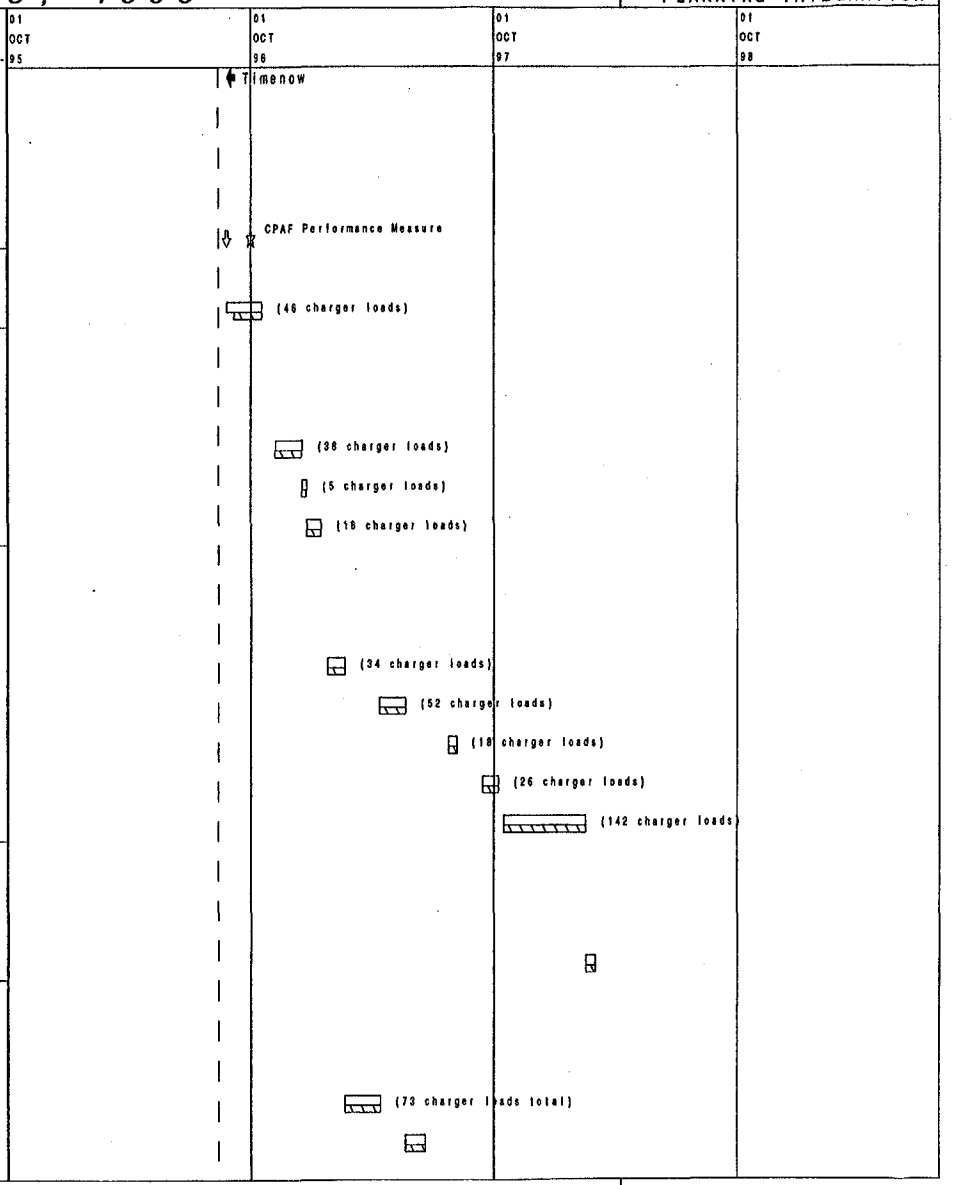
Report: G271
Project: CPP603
Time Now: 13AUG96

CPP-603 SOUTH BASIN FUEL TRANSFERS ONLY
DETAILED SCHEDULE

AUG 15, 1996

Prepared by:
PLANNING INTEGRATION

ID#	Description	Resp. Party	RDur	E Start / B Start	E Finish / B Finish
12311122	**CPP-603 SOUTH BASIN**				
1.2.3.1.1.1.2.3.2.1	**PHASE VI - GROUP 4 FUEL TRANSFERS**				
	PHASE VI - GROUP 4 NAVY (DIG-1 Half Clusters)				
	RECOMMENCE FUEL TRANSFERS CPP-603 SOUTH BASIN				
R3061	Start Fuel Transfers from S. Basin	STUBBLEFIELD	0	26AUG96	26AUG96
				01OCT96	*01OCT96*
		FUEL TRANSFERS			
	FUEL TRANSFER - PHASE VI GROUP 4				
N19220	D1G-1 H/C	RL HAWK	53	26AUG96	17OCT96
				06SEP96	*17OCT96*
1.2.3.1.1.1.2.3.2.2	**PHASE VI - GROUP 5 FUEL TRANSFERS**				
	PHASE VI - GROUP 5 NAVY (Sections, ect)				
		FUEL TRANSFERS			
	FUEL MOVEMENTS - PHASE VI GROUP 5				
NS20180	D1G-1 SA	RL HAWK	40	08NOV96	17DEC96
				07NOV96	*16DEC96*
NS20240	D1G-2 SA	RL HAWK	7	18DEC96	24DEC96
				17DEC96	*23DEC96*
NS19720	S3G-3 SA, PA, PAS	RL HAWK	21	25DEC96	14JAN97
				24DEC96	*13JAN97*
1.2.3.1.1.1.2.2.2.1	**PHASE VI - GROUP 2 FUEL TRANSFERS**				
	PHASE VI - GROUP 2 EBR II				
		FUEL TRANSFERS			
	FUEL TRANSFERS - PHASE VI GROUP 2 EBR-II				
EB18720	EBR II - Group 2 (PART 1)	RL HAWK	26	25JAN97	19FEB97
				25JAN97	*19FEB97*
EB18721	EBR II - Group 2 (PART 2)	RL HAWK	39	13APR97	21MAY97
				13APR97	*21MAY97*
EB18722	EBR II - Group 2 (PART 3)	RL HAWK	13	25JUL97	06AUG97
				25JUL97	*06AUG97*
EB18723	EBR II - Group 2 (PART 4)	RL HAWK	23	15SEP97	07OCT97
				15SEP97	*07OCT97*
EB18724	EBR II - Group 2 (PART 5)	RL HAWK	123	16OCT97	15FEB98
				16OCT97	*15FEB98*
1.2.3.1.1.1.2.2.2.2	**PHASE VI - GROUP 3 FUEL TRANSFERS**				
	PHASE VI - GROUP 3 EBR II (Leakers)				
		FUEL TRANSFERS			
	FUEL TRANSFERS - PHASE VI GROUP 3				
E050	EBR-II - Group 3 (Leakers)	RL HAWK	14	16FEB98	01MAR98
				16FEB98	*01MAR98*
1.2.3.1.1.1.2.4.2.1	**PHASE VII - GROUP 1 FUEL TRANSFERS**				
	PHASE VII - GROUP 1 (Misc. Cans(SNAP/AI, TORY-IIA))				
		FUEL TRANSFERS			
	FUEL TRANSFER - PHASE VII GROUP 1				
23600	TORY-IIA (PART 1)	RL HAWK	53	20FEB97	13APR97
				20FEB97	*13APR97*
23601	TORY-IIA (PART 2)	RL HAWK	30	22MAY97	20JUN97
				22MAY97	*20JUN97*



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LITCO

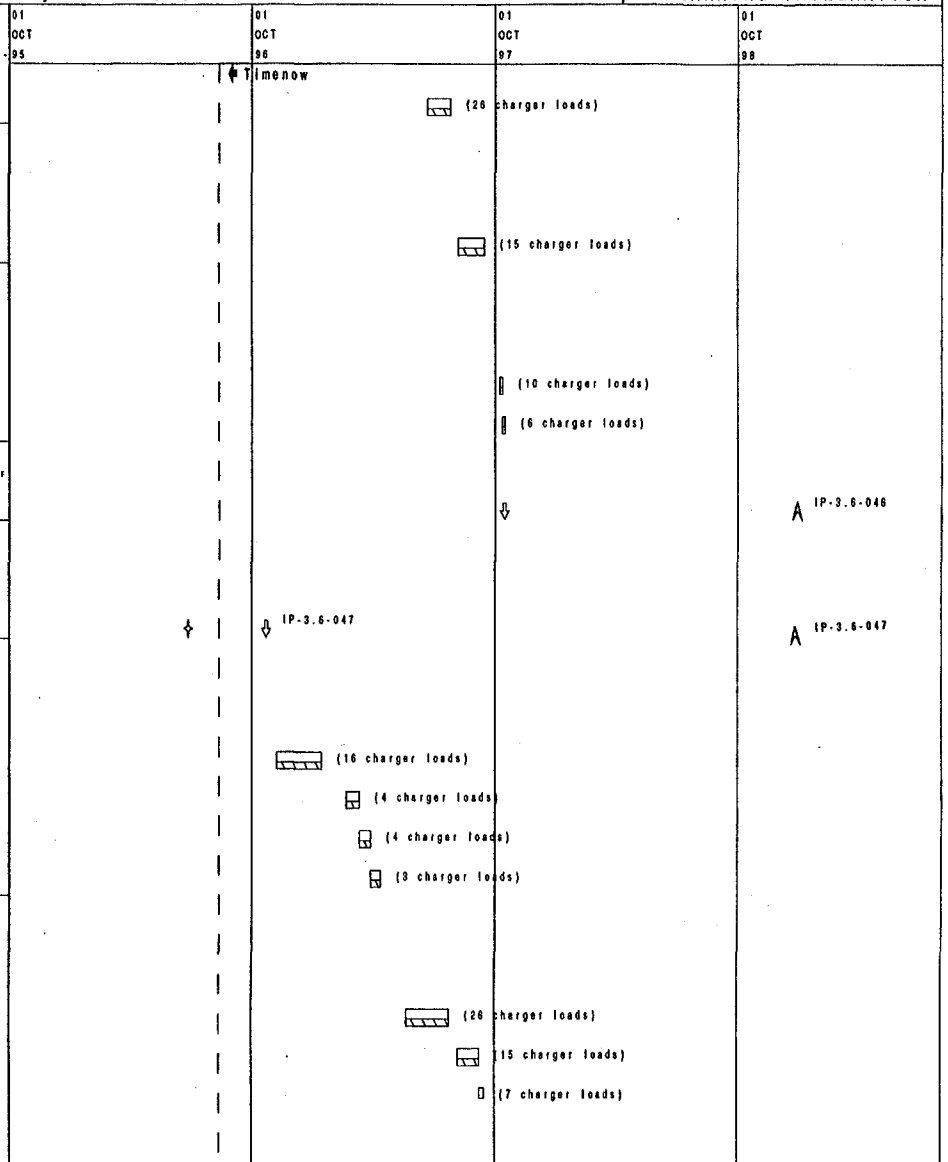
Report: G271
Project: CPP603
Time Now: 13AUG96

CPP-603 SOUTH BASIN FUEL TRANSFERS ONLY DETAILED SCHEDULE

AUG 15, 1996

Prepared by:
PLANNING INTEGRATION

ID#	Description	Resp. Party	RDur	E Start / B Start	E Finish / B Finish
23740	SNAP/AI	RL HAWK	35	21JUN97 / 21JUN97	25JUL97 / 25JUL97
	1.2.3.1.1.1.2.2.4.2.2 PHASE VII - GROUP 2 FUEL TRANSFERS				
	PHASE VII - GROUP 2 (TRIGA-SST) FUEL TRANSFERS				
	FUEL TRANSFER - PHASE VII GROUP 2				
21000	TRIGA SST	RL HAWK	39	07AUG97 / 07AUG97	14SEP97 / 14SEP97
	1.2.3.1.1.1.2.2.4.2.3 PHASE VII - GROUP 3 FUEL TRANSFERS				
	PHASE VII - GROUP 3 (Buffalo Pulstar, GETR) FUEL TRANSFERS				
	FUEL TRANSFER - PHASE VII GROUP 3				
21960	GETR FILTERS	RL HAWK	4	08OCT97 / 08OCT97	11OCT97 / 11OCT97
21480	BUFFALO PULSTAR	RL HAWK	4	12OCT97 / 12OCT97	15OCT97 / 15OCT97
	REMOVAL OF ALL SNF W/O OVERPACKING COMPLETED				
R3032	IP-3.6-046	STUBBLEFIELD	0	15OCT97 / 30DEC98	15OCT97 / 30DEC98
	1.2.3.1.1.1.2.2.1.1.1 PHASE VIII - GROUP 1 PREPARATIONS				
	PHASE VIII - GROUP 1 (ALUMINUM PLATE FUEL)				
	CONSTR./START-UP DRY STORAGE CANNING STATION				
R3034	IP-3.6-047 - Ready to Operate	RL CAMPBELL	0	23OCT98 / 30DEC98	23OCT96 / 30DEC98
	IP-3.6-047				
	1.2.3.1.1.1.2.2.1.2.1 PHASE VIII - GROUP 1 FUEL TRANSFERS				
	PHASE VIII - GROUP 1 (ALUMINUM PLATE FUEL) FUEL TRANSFERS				
	DRY CANNING (to IFSF)				
23280	ATR	RL HAWK	68	07NOV96 / 07NOV96	13JAN97 / 13JAN97
23290	MURR	RL HAWK	20	20FEB97 / 20FEB97	11MAR97 / 11MAR97
23300	HFBR	RL HAWK	17	12MAR97 / 12MAR97	28MAR97 / 28MAR97
23305	ORR	RL HAWK	15	29MAR97 / 29MAR97	12APR97 / 12APR97
	1.2.3.1.1.1.2.2.4.2.4 PHASE VIII - GROUP 2 FUEL TRANSFERS				
	PHASE VIII - GROUP 2 (ALUMINUM TRIGA, WAPD, BMI-SPEC) FUEL TRANSFERS				
	DRY CANNING (to IFSF)				
23310	TRIGA ALUMINUM (PART 1)	RL HAWK	64	22MAY97 / 22MAY97	24JUL97 / 24JUL97
23311	TRIGA ALUMINUM (PART 2)	RL HAWK	32	07AUG97 / 07AUG97	07SEP97 / 07SEP97
24040	WAPD/BMI Spec	RL HAWK	7	08SEP97	14SEP97



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Report: G271
Project: CPP603
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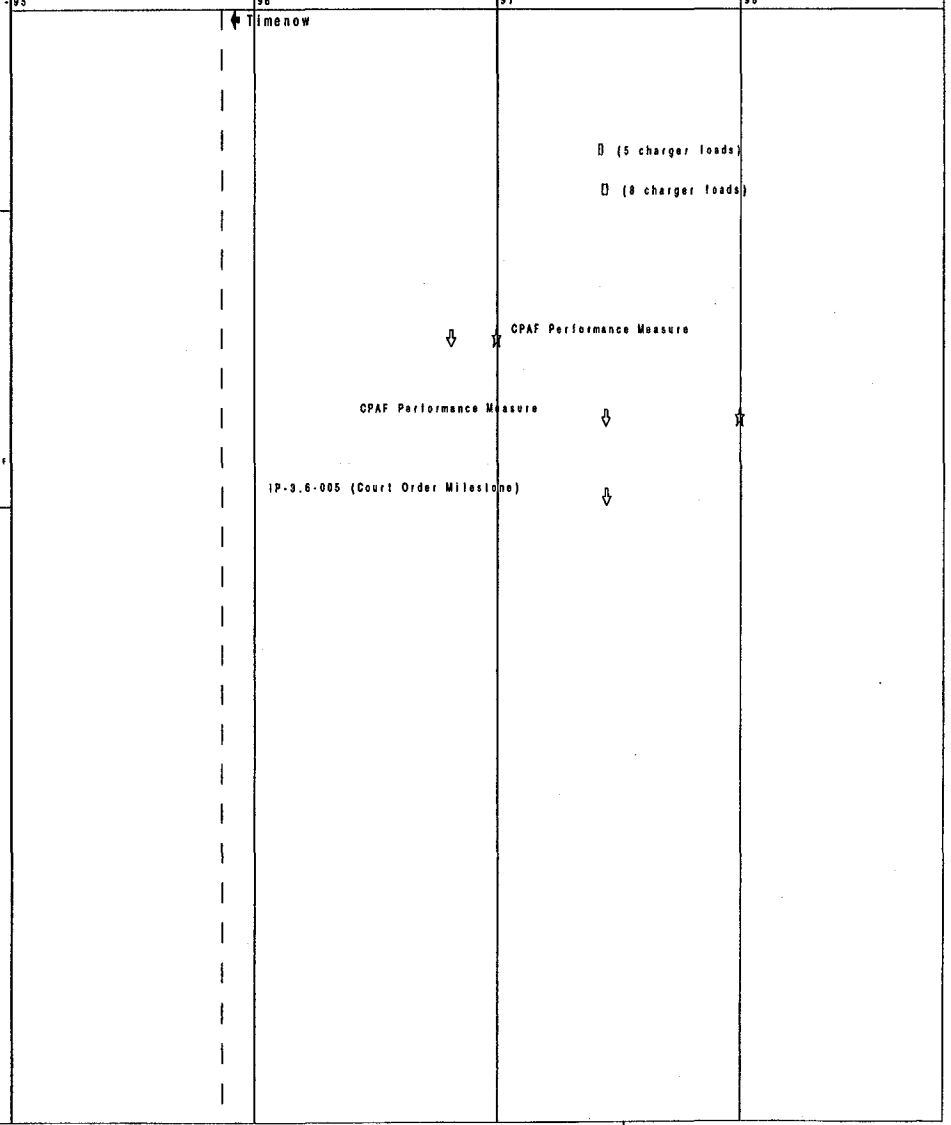
CPP-603 SOUTH BASIN FUEL TRANSFERS ONLY
DETAILED SCHEDULE

AUG 15, 1996

Prepared by:
PLANNING INTEGRATION

ID#	Description	Resp. Party	RDur	E Start / B Start	E Finish / B Finish
1.2.3.1.1.1.2.2.4.2.5	PHASE VIII - GROUP 3 FUEL TRANSFERS				
	PHASE VIII - GROUP 3 (SIR, & GFO's) FUEL TRANSFERS				
	DRY CANNING (to IFSF)				
24041	GFO's	RL HAWK	5	02MAR98	06MAR98
24042	SIR	RL HAWK	8	07MAR98	14MAR98
	PHASE VIII - GROUP 3 (SIR, & GFO's)				
	COMPLETE TRANSFER OF 465 FHU's FROM S. BASIN				
R3071	465 Fuel Units Moved From S. Basin	STUBBLEFIELD	0	24JUL97	24JUL97
				30SEP97	30SEP97
	COMPLETE TRANSFER OF REMAINING 270 FHU's				
R3072	270 Fuel Units Moved From S. Basin	STUBBLEFIELD	0	14MAR98	14MAR98
				30SEP98	30SEP98
	SNF from CPP-603 FUEL STORAGE BASINS COMPLETE				
R3070	S.Basin Empty(718FHUs) - DOE-HQ Mls	STUBBLEFIELD	0	14MAR98	14MAR98
	IP-3.6-005			31DEC00	31DEC00



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FUEL MOVEMENT PREPARATIONS
(Fuel Moves by Phase)

LITCO

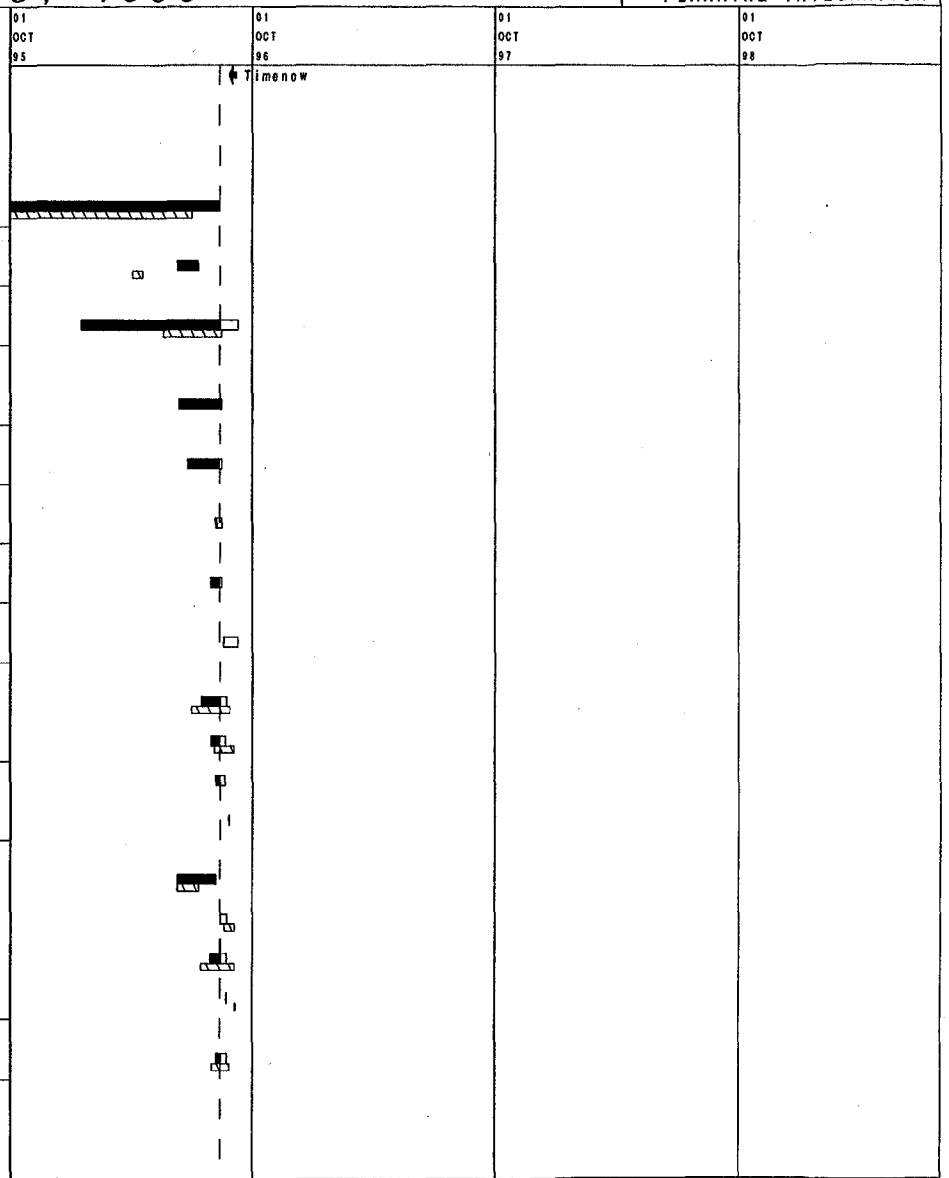
Report: G270B
Project: CPP603
Time Now: 13AUG96

CPP-603 SOUTH BASIN OPERATIONS SCHEDULE
SUMMARY SCHEDULE

AUG 15, 1996

Prepared by:
PLANNING INTEGRATION

	E Start / B Start	E Finish / B Finish
12311122 CPP-603 SOUTH BASIN		
1.2.3.1.1.1.2.2.3.1.1 PHASE VI - GROUP 4 PREPARATIONS		
▶ PHASE VI - GROUP 4 NAVY (D1G-1 Half Clusters)		
PROJECT DEFINITION		
3 MOCK-UP	02OCT95 / 02OCT95	12AUG96 / 01JUL96
DESIGN ENGINEERING - OUTSIDE		
2 DESIGN ENGINEERING	10JUN96 / 03APR96	11JUL96 / 17APR96
PROCUREMENT BY OUTSIDE AGENCIES		
PROCUREMENT - BUCKETS	17JAN96 / 20MAY96	09SEP96 / 15AUG96
WORK ORDERS		
<<<<<<<<<< 172551 >>>>>>>>>>		
FAB CRIT BARRIERS	12JUN96	15AUG96
<<<<<<<<<< 173282 >>>>>>>>>>		
FAB CANTILEVER CLAMP TOOLS	25JUN96	15AUG96
<<<<<<<<<< 173806 >>>>>>>>>>		
FAB CANTILEVER CLAMP HANDLES	06AUG96	15AUG96
<<<<<<<<<< 173883 >>>>>>>>>>		
MODIFY RECOVERY CANTILEVER CLAMP TOOLS	30JUL96	15AUG96
SAFETY DOCUMENTATION		
ESF for BU-SF-911- Buckets/Tools	19AUG96	09SEP96
PROCEDURES & TRAINING		
PROCEDURE - PHASE VI (NAVY D1G-1 H/C)	16JUL96 / 01JUL96	22AUG96 / 27AUG96
TRAINING - PHASE VI (NAVY D1G-1 H/C)	30JUL96 / 05AUG96	21AUG96 / 03SEP96
1 TEMP. PROCEDURE - INSPECT MIDDLE BASIN	06AUG96	20AUG96
2INSPECT MIDDLE BASIN	26AUG96	26AUG96
CERTIFICATION OF READINESS		
1 MSA - FUEL MOVEMENT PHASE VI	10JUN96 / 10JUN96	06AUG96 / 11JUL96
2 OPERATIONAL REVIEW	13AUG96 / 19AUG96	22AUG96 / 03SEP96
3 RA - FUEL MOVEMENT PHASE VI	29JUL96 / 15JUL96	22AUG96 / 03SEP96
4 DOE APPROVAL TO TRANSFER FUEL	22AUG96 / 04SEP96	22AUG96 / 05SEP96
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE #1 - (NAVY D1G-1 H/C)	06AUG96 / 31JUL96	22AUG96 / 26AUG96



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LITCO

Report: G270B
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CPP-603 SOUTH BASIN OPERATIONS SCHEDULE
SUMMARY SCHEDULE

AUG 15, 1996

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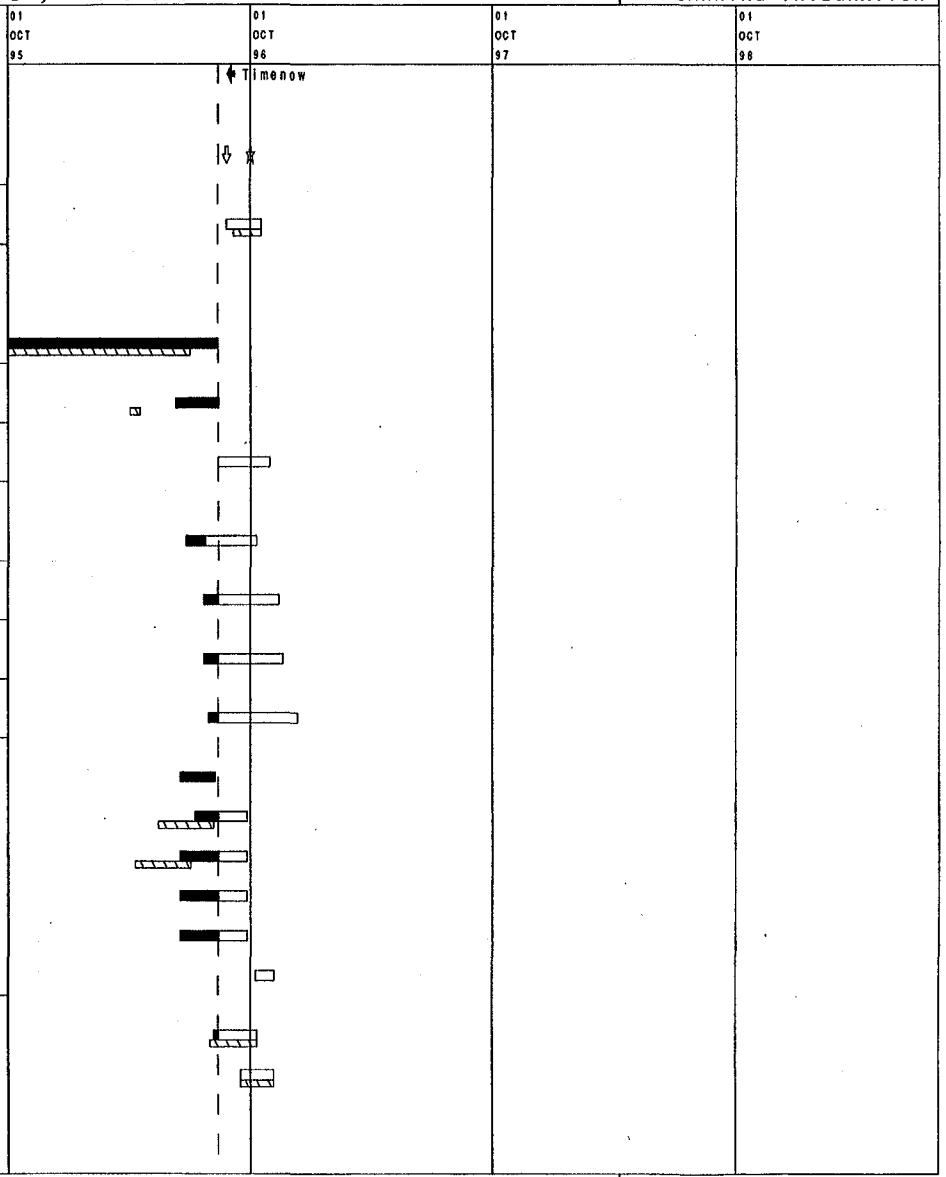
1.2.3.1.1.1.2.2.3.2.1 PHASE VI - GROUP 4 FUEL TRANSFERS		
▶ PHASE VI - GROUP 4 NAVY (DIG-1 Half Clusters)		
RECOMMENCE FUEL TRANSFERS CPP-603 SOUTH BASIN	26AUG96 01OCT96	26AUG96 01OCT96
FUEL TRANSFERS		
FUEL TRANSFER - PHASE VI GROUP 4	26AUG96 06SEP96	17OCT96 17OCT96
1.2.3.1.1.1.2.2.3.1.2 PHASE VI - GROUP 5 PREPARATIONS		
▶ PHASE VI - GROUP 5 NAVY (Sections, ect)		
PROJECT DEFINITION		
3 MOCK-UP	02OCT95 02OCT95	12AUG96 01JUL96
DESIGN ENGINEERING - OUTSIDE		
2 DESIGN ENGINEERING	10JUN96 03APR96	13AUG96 17APR96
WORK ORDERS TO BE DEVELOPED		
TBD-DES/FAB ASSISTANCE & RECOVERY TOOLS	13AUG96	29OCT96
WORK ORDERS		
<<<<<<<<<< 173459 >>>>>>>>>>		
FAB - SMALL CLAMP TOOL CLP-SF-983-X	25JUN96	09OCT96
<<<<<<<<<< 173647 >>>>>>>>>>		
FABRICATE 915 BUCKETS (D1G-1 SA - 38 Buckets)	22JUL96	12NOV96
<<<<<<<<<< 173648 >>>>>>>>>>		
FABRICATE 916 BUCKETS (D1G-2 SA - 5 Buckets)	22JUL96	18NOV96
<<<<<<<<<< 173730 >>>>>>>>>>		
FAB 905 BUCKETS (S3G-3 - 12 Buckets)	29JUL96	10DEC96
SAFETY DOCUMENTATION		
1A CSE's - D1G-2	17JUN96	08AUG96
1A SAFETY ASSESSMENT - NAVY (SECTIONS)	09JUL96 15MAY96	25SEP96 05AUG96
2A TS/S 4.6 CHANGES	17JUN96 11APR96	25SEP96 02JUL96
3A TS/S 5.6 CHANGES	17JUN96	25SEP96
4A REVISE TS 4.5TRQ2 (to Include DIG-2 SA)	17JUN96	25SEP96
5 ESF VERIFICATIONS	09OCT96	05NOV96
PROCEDURES & TRAINING		
PROCEDURE - PHASE VI (NAVY SECTIONS)	06AUG96 01AUG96	10OCT96 10OCT96
TRAINING - PHASE VI (NAVY SECTIONS)	16SEP96 16SEP96	04NOV96 04NOV96



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LITCO

Report: G270B
Project: CPP603
Time Now: 13AUG96

CPP-603 SOUTH BASIN OPERATIONS SCHEDULE
SUMMARY SCHEDULE

AUG 15, 1996

Prepared by:
PLANNING INTEGRATION

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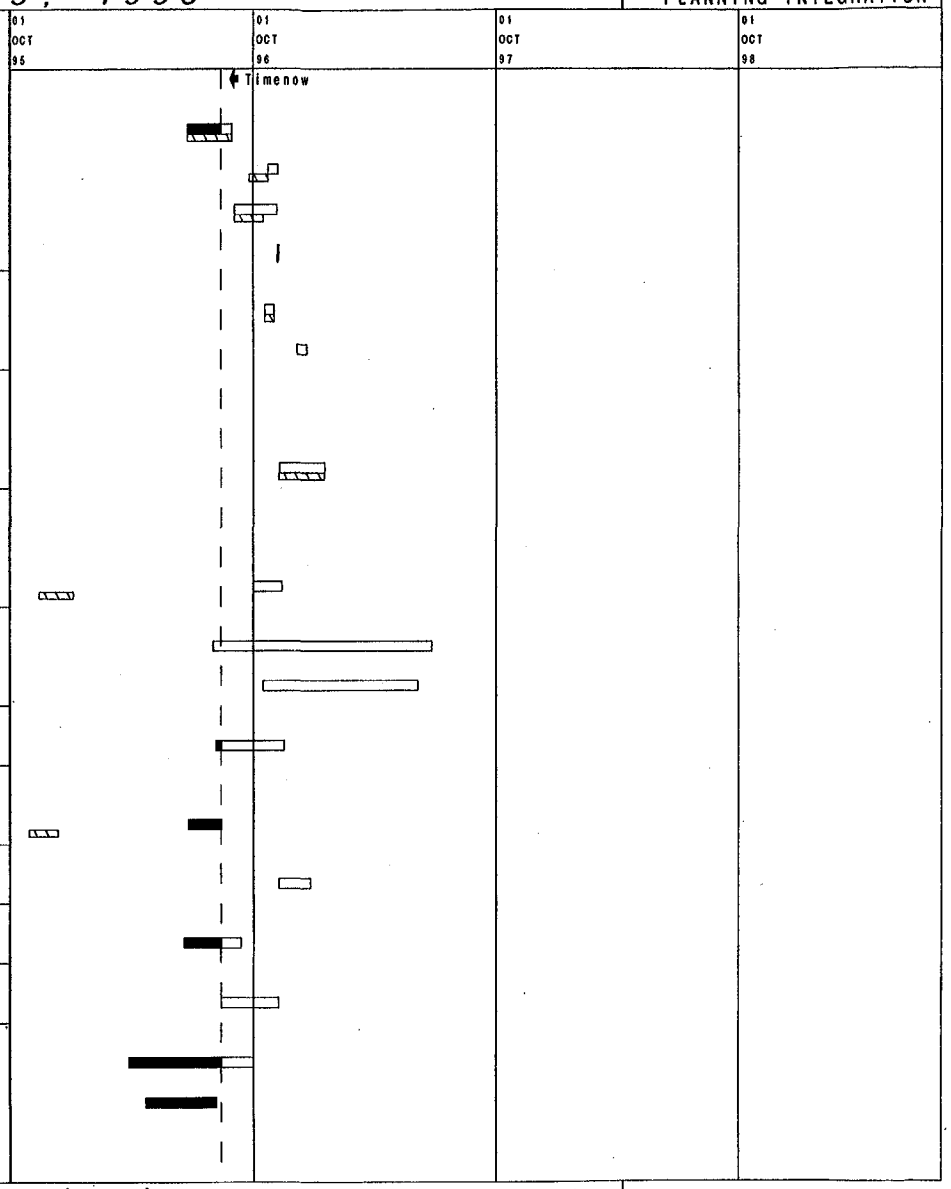
CERTIFICATION OF READINESS		
1 MSA - FUEL MOVEMENT PHASE VI	24JUN96 / 24JUN96	29AUG96 / 29AUG96
2 OPERATIONAL REVIEW	23OCT96 / 25SEP96	05NOV96 / 22OCT96
3 RA - FUEL MOVEMENT PHASE VI	03SEP96 / 03SEP96	04NOV96 / 15OCT96
4 DOE APPROVAL TO TRANSFER FUEL	06NOV96 / 05NOV96	07NOV96 / 06NOV96
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE #1 - PHASE VI FTG5 (D1G's)	18OCT96 / 18OCT96	31OCT96 / 31OCT96
BATCHING SCHEDULE #2 - PHASE VI FTG5 (S3G-3)	05DEC96	19DEC96
1.2.3.1.1.1.2.2.3.2.2 PHASE VI - GROUP 5 FUEL TRANSFERS		
▶ PHASE VI - GROUP 5 NAVY (Sections, ect)		
FUEL TRANSFERS		
FUEL MOVEMENTS - PHASE VI GROUP 5	08NOV96 / 07NOV96	14JAN97 / 13JAN97
1.2.3.1.1.1.2.2.2.1.1 PHASE VI - GROUP 2 PREPARATIONS		
▶ PHASE VI - GROUP 2 EBR II		
PROJECT DEFINITION		
2AA UT INSPECTION FIXTURE INSTALL WO#166436	01OCT96 / 15NOV95	11NOV96 / 04JAN96
WORK ORDERS TO BE DEVELOPED		
FABRICATION - (IFSF Buckets EBR-II)	01AUG96	25JUN97
TBD #1	15OCT96	04JUN97
<<<<<<<<<< 172554 >>>>>>>>>>		
TBD (CARBON STEEL CANISTER INSPECTION)	05AUG96	14NOV96
WORK ORDERS		
<<<<<<<<<< 161943 >>>>>>>>>>		
EBR-II CAN HANDLING TOOL	25JUN96 / 31OCT95	13AUG96 / 12DEC95
<<<<<<<<<< 171063 >>>>>>>>>>		
DES A LOAD BAR & WASTE BOX FOR RK-SF-901 RACK	07NOV96	24DEC96
<<<<<<<<<< 171063-1 >>>>>>>>>>		
DES A LOAD BAR & WASTE BOX FOR RK-SF-901 RACK	18JUN96	11SEP96
<<<<<<<<<< 171063-2 >>>>>>>>>>		
DES A LOAD BAR & WASTE BOX FOR RK-SF-901 RACK	13AUG96	06NOV96
<<<<<<<<<< 171768 >>>>>>>>>>		
1A DESIGN IFSF BUCKETS FOR EBR-II	27MAR96	30SEP96
1D DESIGN HARD PIPE EBRII CONTAINER TOOL	22APR96	05AUG96



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LITCO

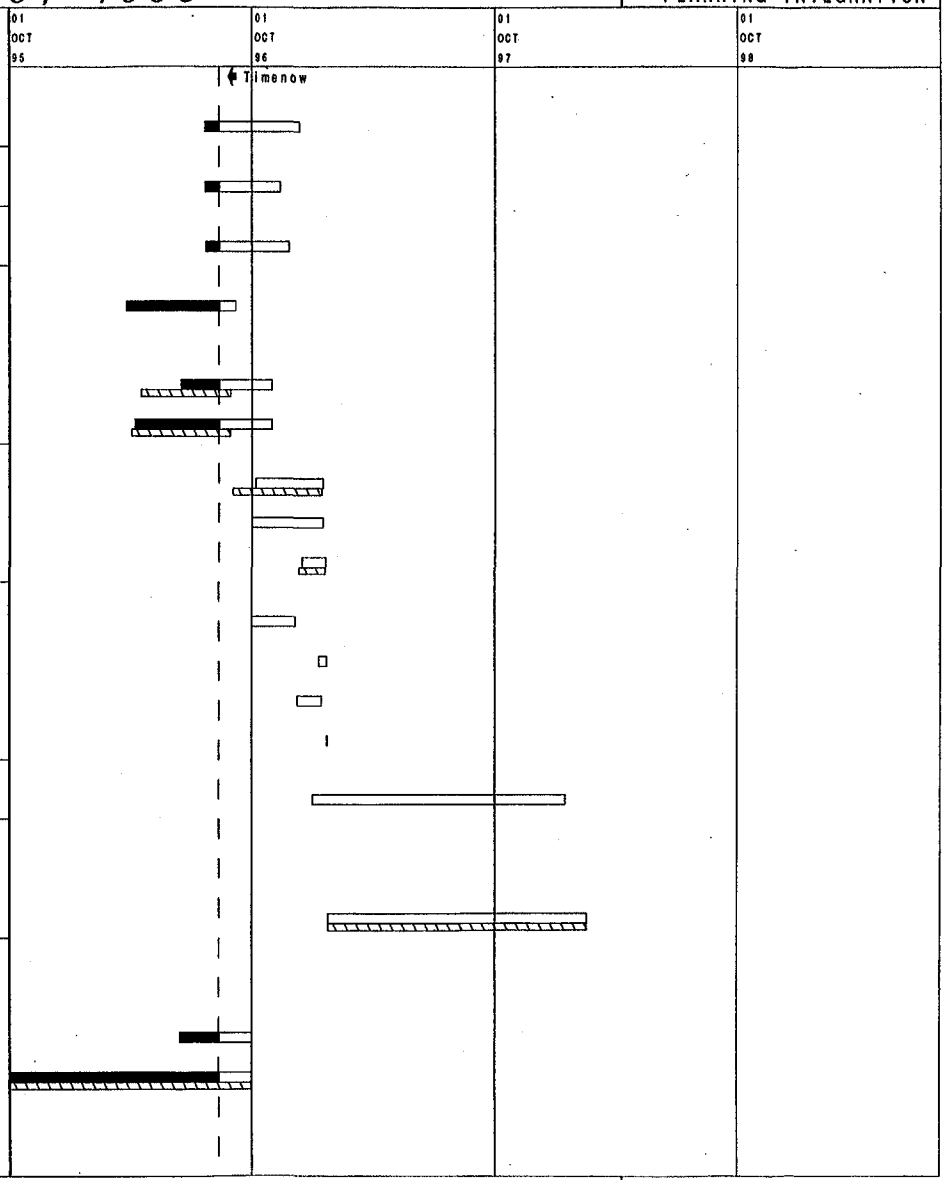
Report: G2708
Project: CPP603
Time Now: 13AUG96

CPP-603 SOUTH BASIN OPERATIONS SCHEDULE
SUMMARY SCHEDULE

AUG 15, 1996

Prepared by:
PLANNING INTEGRATION

	E Start / B Start	E Finish / B Finish
<<<<<<<<<< 173676 >>>>>>>>>>		
FAB HOLDING ADPT.'S FOR BUCKET & RACK INSERT	23JUL96	11DEC96
<<<<<<<<<< 173677 >>>>>>>>>>		
FAB RACK INSERT LIFTING ADPT MODIFICATION	23JUL96	13NOV96
<<<<<<<<<< 173794 >>>>>>>>>>		
FAB HARD PIPE EBRII CONTAINER TOOL	24JUL96	26NOV96
SAFETY DOCUMENTATION		
1 CSE's	27MAR96	06SEP96
1 DECISION POINT	13AUG96	13AUG96
1A SA-A REVISION (EBR-II TO IFSF)	17JUN96 / 16APR96	31OCT96 / 29AUG96
2A PSD & TS 4.12 CHANGES	09APR96 / 04APR96	31OCT96 / 29AUG96
PROCEDURES & TRAINING		
1 PROCEDURE - S.B. LOAD & TRANSFER	07OCT96 / 03SEP96	16JAN97 / 14JAN97
2 PROCEDURE - IFSF REPACKAGE & STORE	01OCT96	16JAN97
TRAINING - PHASE VI FTG2 EBR-II	16DEC96 / 12DEC96	20JAN97 / 20JAN97
CERTIFICATION OF READINESS		
1 MSA - FUEL MOVEMENT PHASE VI FTG2	01OCT96	05DEC96
2 OPERATIONAL REVIEW	11JAN97	22JAN97
3 RA - FUEL MOVEMENT PHASE VI FTG2	09DEC96	14JAN97
4 DOE APPROVAL TO TRANSFER FUEL	23JAN97	23JAN97
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE -	01JAN97	14JAN98
1.2.3.1.1.1.2.2.2.2.1 PHASE VI - GROUP 2 FUEL TRANSFERS		
PHASE VI - GROUP 2 EBR II		
FUEL TRANSFERS		
FUEL TRANSFERS - PHASE VI GROUP 2 EBR-II	25JAN97 / 25JAN97	15FEB98 / 15FEB98
1.2.3.1.1.1.2.2.2.1.2 PHASE VI - GROUP 3 PREPARATIONS		
PHASE VI - GROUP 3 EBR II (Leakers)		
PROJECT DEFINITION		
1A FUEL MOVEMENT PLAN	15JUN96	30SEP96
FUEL TRANSFER - PHASE VI GROUP 3	01OCT95 / 01OCT95	29SEP96 / 29SEP96



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Report: G270B
Project: CPP603
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CPP-603 SOUTH BASIN OPERATIONS SCHEDULE
SUMMARY SCHEDULE

AUG 15, 1996

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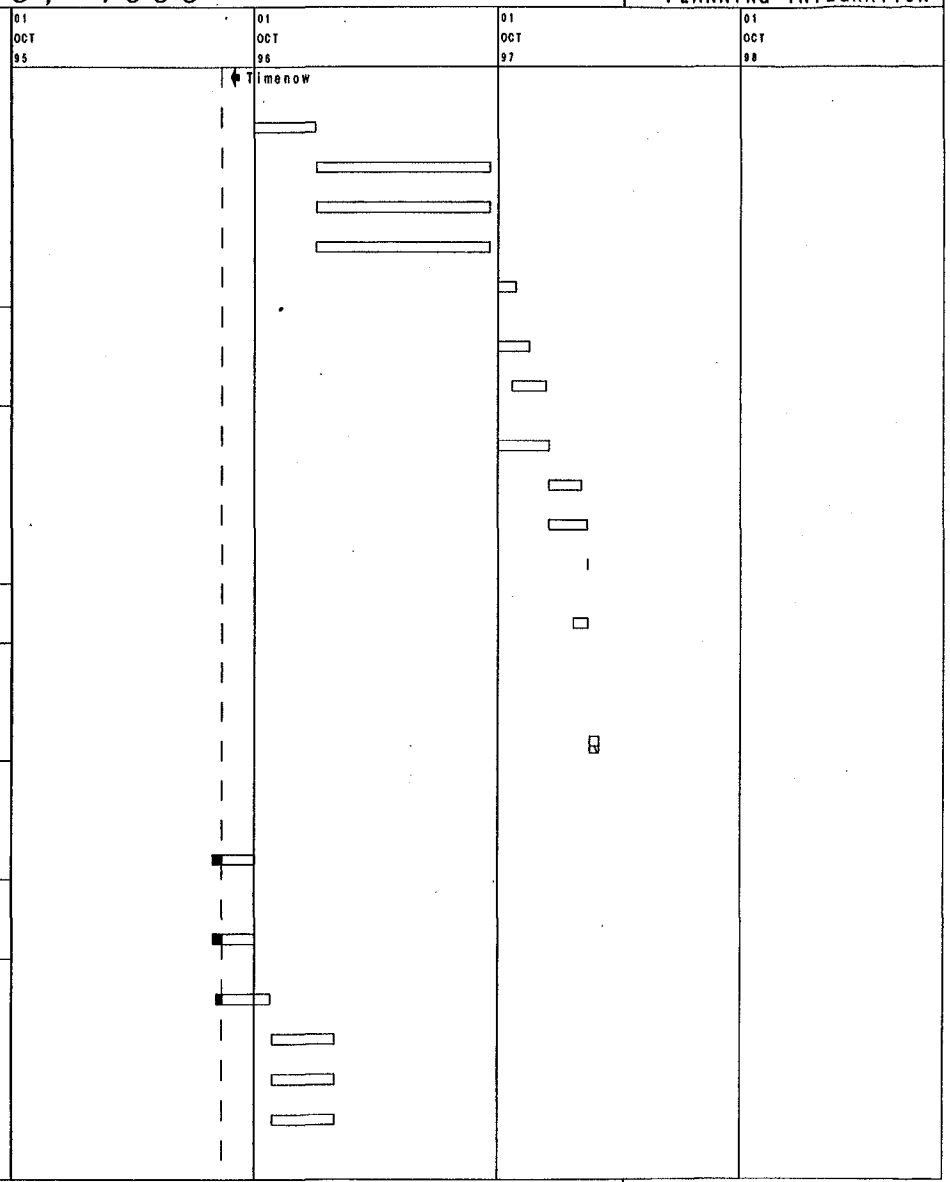
PLANNING INTEGRATION

	E Start / B Start	E Finish / B Finish
SAFETY DOCUMENTATION		
1 CSE's FOR DROP ACCIDENT	01OCT96	31DEC96
1A SAFETY ASSESSMENT - PHVIII FTG3	02JAN97	18SEP97
2A TSTRQ2 4.5 CHANGES	02JAN97	18SEP97
3A PSD/TS 5.6 CHANGES	02JAN97	18SEP97
4 ESF VERIFICATIONS	01OCT97	28OCT97
PROCEDURES & TRAINING		
PROCEDURE - PHASE VIII FTG3	01OCT97	17NOV97
TRAINING - PHASE VIII FTG3	23OCT97	11DEC97
CERTIFICATION OF READINESS		
1 MANAGEMENT SELF ASSESSMENT	01OCT97	16DEC97
2 READINESS ASSESSMENT	17DEC97	03FEB98
3 OPERATIONAL REVIEW	17DEC97	11FEB98
4 DOE APPROVAL TO TRANSFER FUEL	12FEB98	12FEB98
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE #1	23JAN98	12FEB98
1.2.3.1.1.1.2.2.2.2.2 PHASE VI - GROUP 3 FUEL TRANSFERS		
▶ ***PHASE VI - GROUP 3 EBR II (Leakers)***		
FUEL TRANSFERS		
FUEL TRANSFERS - PHASE VI GROUP 3	16FEB98 / *16FEB98*	01MAR98 / *01MAR98*
1.2.3.1.1.1.2.2.4.1.1 PHASE VII - GROUP 1 PREPARATIONS		
▶ ***PHASE VII - GROUP 1 (Misc. Cans(SNAP/AI, TORY-IIA))***		
PROJECT DEFINITION		
1A FUEL MOVEMENT PLAN	30JUL96	01OCT96
WORK ORDERS		
<<<<<<<<<< *173795* >>>>>>>>>>		
TORY-IIA CAN DROP CALC's IN STR CHARGER	30JUL96	30SEP96
SAFETY DOCUMENTATION		
1 CSE REVIEW	05AUG96	24OCT96
1A SAFETY EVALUATION	28OCT96	29JAN97
2A REVISE TS 4.5TRQ2	28OCT96	29JAN97
3A REVISE TS 5.6	28OCT96	29JAN97



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Report: G270B
Project: CPP603
Time Now: 13AUG96

CPP-603 SOUTH BASIN OPERATIONS SCHEDULE
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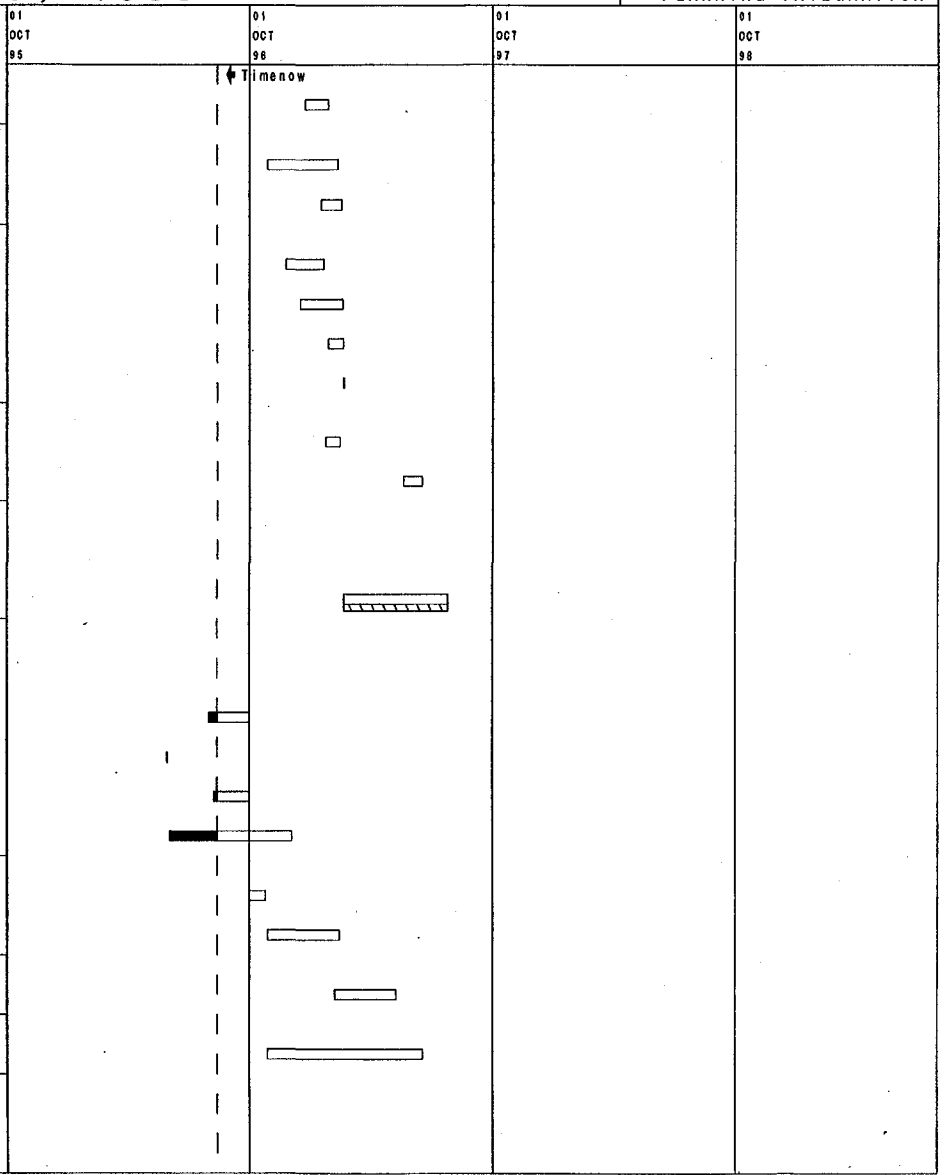
4 ESF VERIFICATIONS	24DEC96	27JAN97
PROCEDURES & TRAINING		
PROCEDURE #1	28OCT96	10FEB97
TRAINING	17JAN97	16FEB97
CERTIFICATION OF READINESS		
1 MANAGEMENT SELF ASSESSMENT	25NOV96	20JAN97
2 READINESS ASSESSMENT	17DEC96	17FEB97
3 OPERATIONAL REVIEW	28JAN97	18FEB97
4 DOE APPROVAL TO TRANSFER FUEL	19FEB97	19FEB97
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE #1 - TORY-IIA	24JAN97	13FEB97
BATCHING SCHEDULE #2 - SNAP/AI	20MAY97	16JUN97
1.2.3.1.1.1.2.2.4.2.1 PHASE VII - GROUP 1 FUEL TRANSFERS		
PHASE VII - GROUP 1 (Misc. Cans(SNAP/AI, TORY-IIA))		
FUEL TRANSFERS		
FUEL TRANSFER - PHASE VII GROUP 1	20FEB97	25JUL97
	20FEB97	*25JUL97*
1.2.3.1.1.1.2.2.4.1.2 PHASE VII - GROUP 2 PREPARATIONS		
PHASE VII - GROUP 2 (TRIGA-SST)		
PROJECT DEFINITION		
1A FUEL MOVEMENT PLAN	01AUG96	30SEP96
1B VALUE ENGINEERING SESSION	30MAY96	30MAY96
2A DESIGN CRITERIA	08AUG96	30SEP96
3 MOCK-UP	03JUN96	03DEC96
DESIGN ENGINEERING - OUTSIDE		
1 DESIGN ENGINEERING - SCOPE & AUTHORIZE	01OCT96	24OCT96
2 DESIGN ENGINEERING	28OCT96	12FEB97
PROCUREMENT BY OUTSIDE AGENCIES		
FABRICATE - TOOLS/BUCKETS	06FEB97	08MAY97
WORK ORDERS TO BE DEVELOPED		
TBD #1	28OCT96	17JUN97



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Report: G270B
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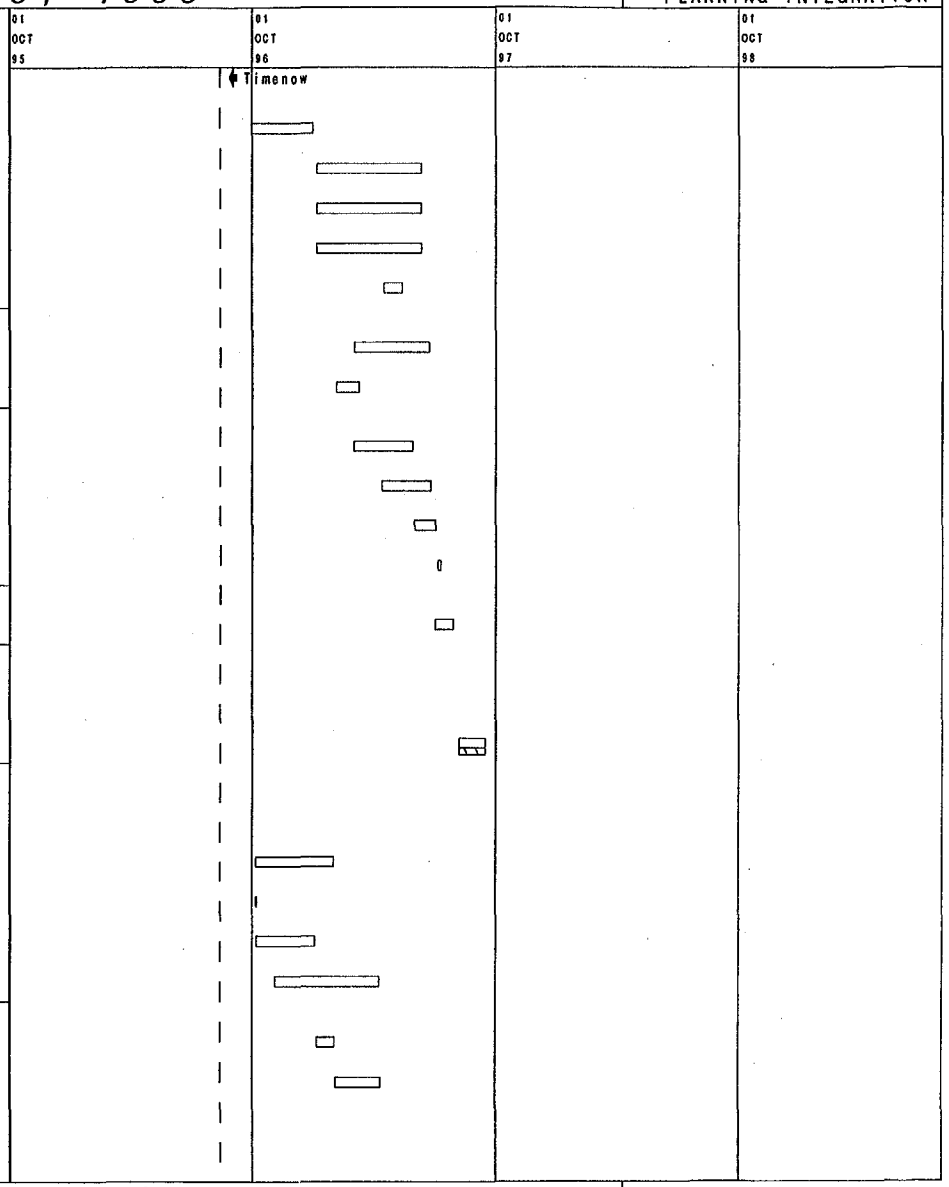
SAFETY DOCUMENTATION		
1 SAFETY DOCUMENTATION	01OCT96	31DEC96
2A SAFETY ASSESSMENT	06JAN97	11JUN97
3A TS 4.5TRQ2 REVISION	06JAN97	11JUN97
4A TS 5.6 REVISION	06JAN97	11JUN97
5 ESF VERIFICATIONS	17APR97	14MAY97
PROCEDURES & TRAINING		
PROCEDURE #1	03MAR97	23JUN97
TRAINING	04FEB97	10MAR97
CERTIFICATION OF READINESS		
1 MANAGEMENT SELF ASSESSMENT	03MAR97	29MAY97
2 READINESS ASSESSMENT	14APR97	26JUN97
3 OPERATIONAL REVIEW	02JUN97	03JUL97
4 DOE APPROVAL TO TRANSFER FUEL	07JUL97	10JUL97
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE #1	03JUL97	29JUL97
1.2.3.1.1.1.2.2.4.2.2 PHASE VII - GROUP 2 FUEL TRANSFERS		
PHASE VII - GROUP 2 (TRIGA-SST)		
FUEL TRANSFERS		
FUEL TRANSFER - PHASE VII GROUP 2	07AUG97 / *07AUG97*	14SEP97 / *14SEP97*
1.2.3.1.1.1.2.2.4.1.3 PHASE VII - GROUP 3 PREPARATIONS		
PHASE VII - GROUP 3 (Buffalo Pulstar, GETR)		
PROJECT DEFINITION		
1A FUEL MOVEMENT PLAN	07OCT96	30JAN97
1B VALUE ENGINEERING SESSION	07OCT96	08OCT96
2A DESIGN CRITERIA	07OCT96	02JAN97
3 MOCK-UP	04NOV96	09APR97
DESIGN ENGINEERING - OUTSIDE		
1 DESIGN ENGINEERING - SCOPE & AUTHORIZE	06JAN97	31JAN97
2 DESIGN ENGINEERING	03FEB97	11APR97



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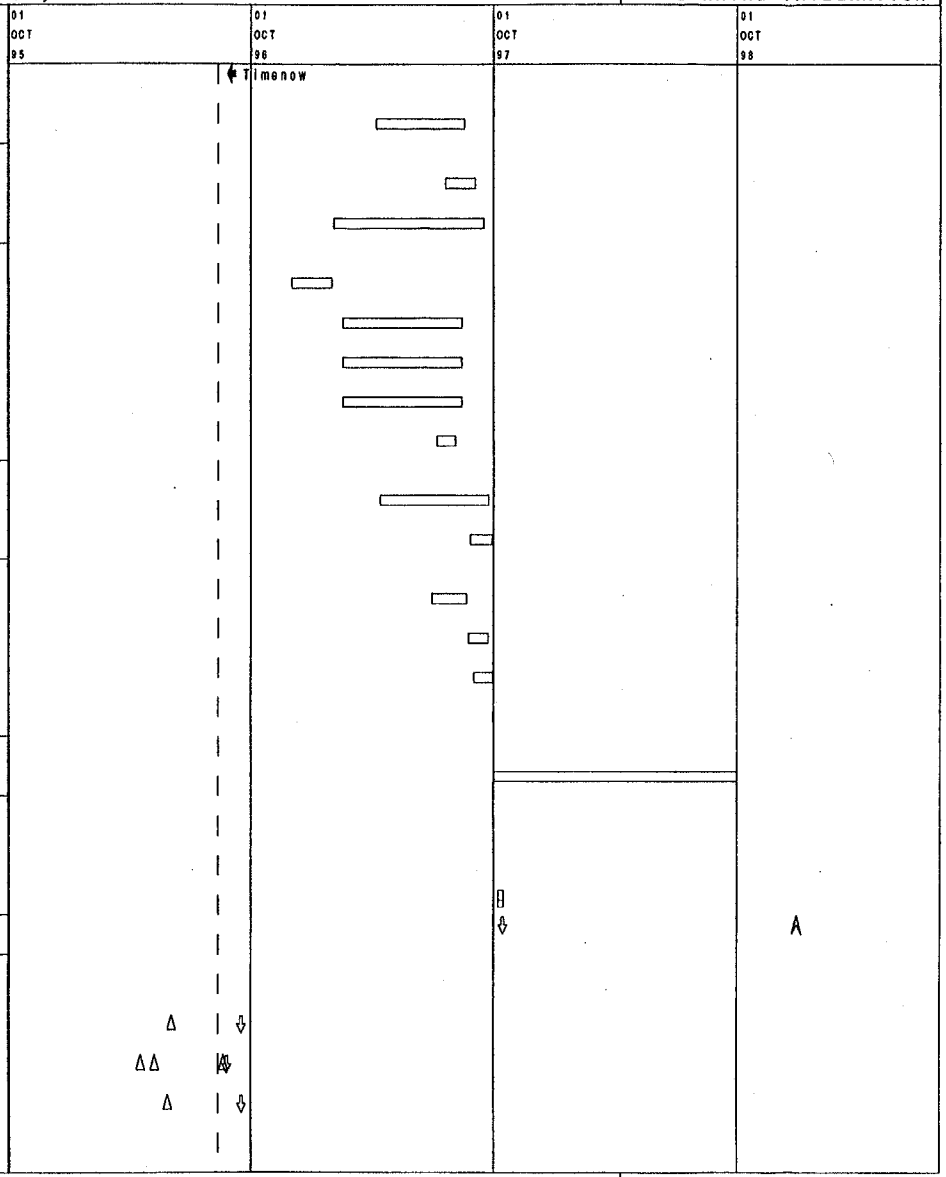
PROCUREMENT BY OUTSIDE AGENCIES		
FABRICATE - TOOLS/CANS/BUCKETS/STATION	08APR97	18AUG97
WORK ORDERS TO BE DEVELOPED		
INSTALL REPACKAGING STAND	21JUL97	03SEP97
TBD #1	03FEB97	16SEP97
SAFETY DOCUMENTATION		
1 CSE's	02DEC96	30JAN97
1A SAFETY ASSESSMENT -	17FEB97	14AUG97
2A TS 4.5TRQ2 CHANGES	17FEB97	14AUG97
4A TS 5.6 CHANGES	17FEB97	14AUG97
5 ESF VERIFICATIONS	08JUL97	04AUG97
PROCEDURES & TRAINING		
PROCEDURE -	14APR97	23SEP97
TRAINING -	28AUG97	28SEP97
CERTIFICATION OF READINESS		
1 MANAGEMENT SELF ASSESSMENT	30JUN97	21AUG97
2 READINESS ASSESSMENT	25AUG97	22SEP97
3 OPERATIONAL REVIEW	02SEP97	29SEP97
4 DOE APPROVAL TO TRANSFER FUEL	30SEP97	01OCT97
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE #1 -	02OCT97	30SEP98
1.2.3.1.1.1.2.2.4.2.3 PHASE VII - GROUP 3 FUEL TRANSFERS		
PHASE VII - GROUP 3 (Buffalo Pulstar, GETR)		
FUEL TRANSFERS		
FUEL TRANSFER - PHASE VII GROUP 3	08OCT97	15OCT97
	08OCT97	*15OCT97*
REMOVAL OF ALL SNF W/O OVERPACKING COMPLETED	15OCT97	15OCT97
	30DEC98	*30DEC98*
1.2.3.1.1.1.2.2.1.1.1 PHASE VIII - GROUP 1 PREPARATIONS		
PHASE VIII - GROUP 1 (ALUMINUM PLATE FUEL)		
1 PROCURE & INSTALL NEW CANISTERS COMPLETE	17SEP96	17SEP96
	04JUN96	*04JUN96*
2 COMPLETE & ISSUE PROCEDURE	21AUG96	26AUG96
	18APR96	*09MAY96*
3 COMPLETE TRAINING FOR F.C.S. OPERATION	17SEP96	17SEP96
	29MAY96	*29MAY96*



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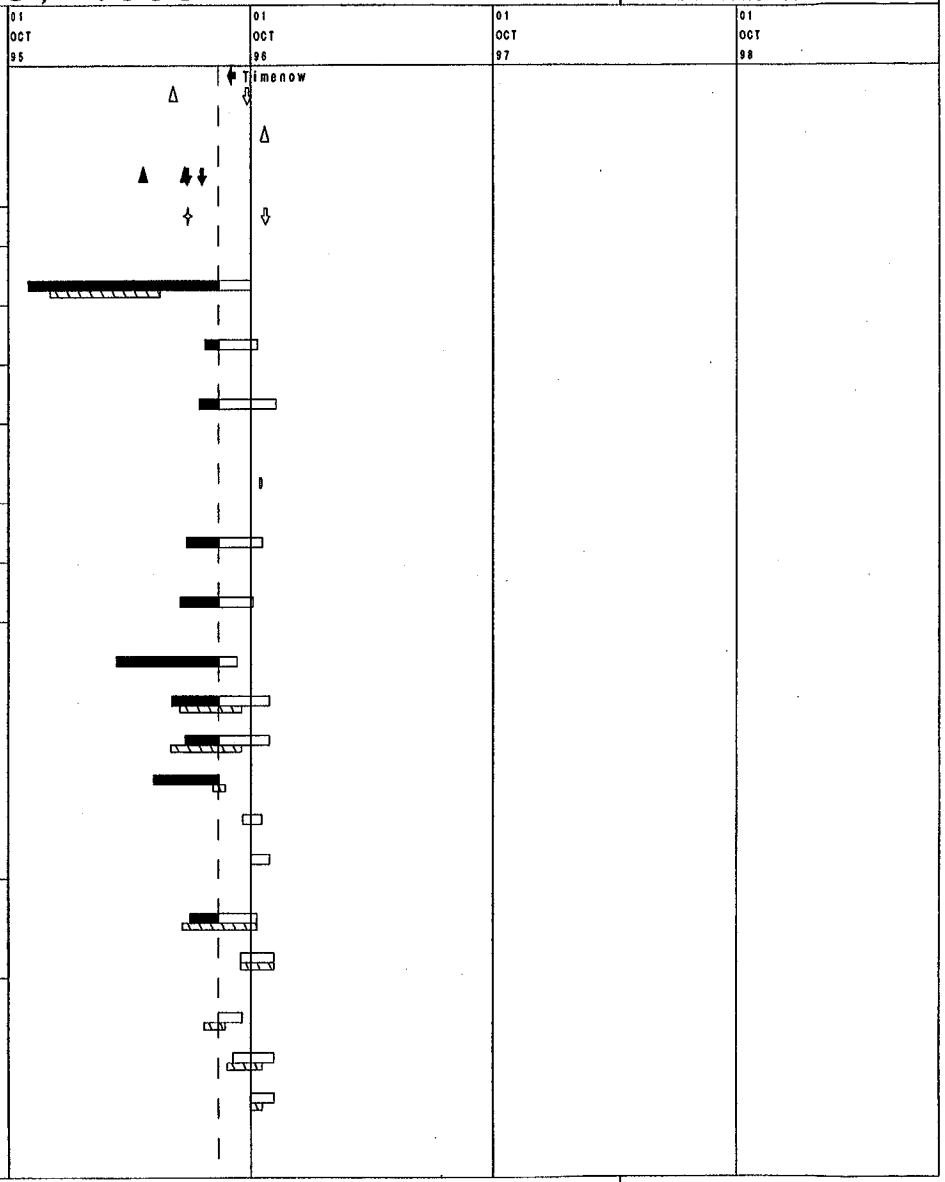
4 COMPLETE LITCO RA	26SEP96 / 07JUN96	26SEP96 / 07JUN96
5 COMPLETE DOE RA	22OCT96	22OCT96
IFSF SEISMIC EVALUATION	27JUN96 / 22APR96	19JUL96 / 24JUN96
CONSTR./START-UP DRY STORAGE CANNING STATION	23OCT96 / 28JUN96	23OCT96 / 28JUN96
PROJECT DEFINITION		
3 MOCK-UP	01NOV95 / 04DEC95	30SEP96 / 16MAY96
PROCUREMENT BY OUTSIDE AGENCIES		
FABRICATION - (Tools/Can)	23JUL96	10OCT96
WORK ORDERS TO BE DEVELOPED		
DESIGN & FABRICATE VISE GRIP TOOLS	15JUL96	07NOV96
WORK ORDERS		
<<<<<<<<<< *169481* >>>>>>>>>>		
FABRICATE - TOOLS/CAN	14OCT96	16OCT96
<<<<<<<<<< *172247* >>>>>>>>>>		
DETACH HOIST 311 FROM CRANE 002	26JUN96	17OCT96
<<<<<<<<<< *172342* >>>>>>>>>>		
MODIFY IFSF LIFTING TOOL (PROTOTYPE)	17JUN96	03OCT96
SAFETY DOCUMENTATION		
1 CSE's FOR DROP ACCIDENT	12MAR96	09SEP96
1A SAFETY ASSESSMENT - PHVIII FTG1(AL. PLATE)	04JUN96 / 17JUN96	28OCT96 / 16SEP96
2A PSD/TS 4.5 CHANGES (HI-LOAD to IFSF)	24JUN96 / 03JUN96	28OCT96 / 16SEP96
3A PSD/TS 4.12 (AL PLATE&TRIGA,WAPD,BMI-SPEC)	07MAY96 / 05AUG96	12AUG96 / 22AUG96
4 ESF VERIFICATIONS	19SEP96	16OCT96
5 SAFETY DOCUMENTATION IMPLEMENTATION	01OCT96	28OCT96
PROCEDURES & TRAINING		
PROCEDURE - PHASE VIII FTG1 (AL PLATE FUELS)	01JUL96 / 20JUN96	09OCT96 / 09OCT96
TRAINING - PHASE VIII FTG1 (AL PLATE FUELS)	16SEP96 / 16SEP96	04NOV96 / 04NOV96
CERTIFICATION OF READINESS		
1 MANAGEMENT SELF ASSESSMENT	13AUG96 / 22JUL96	17SEP96 / 22AUG96
2 READINESS ASSESSMENT	04SEP96 / 26AUG96	04NOV96 / 17OCT96
3 OPERATIONAL REVIEW	30SEP96 / 30SEP96	04NOV96 / 17OCT96



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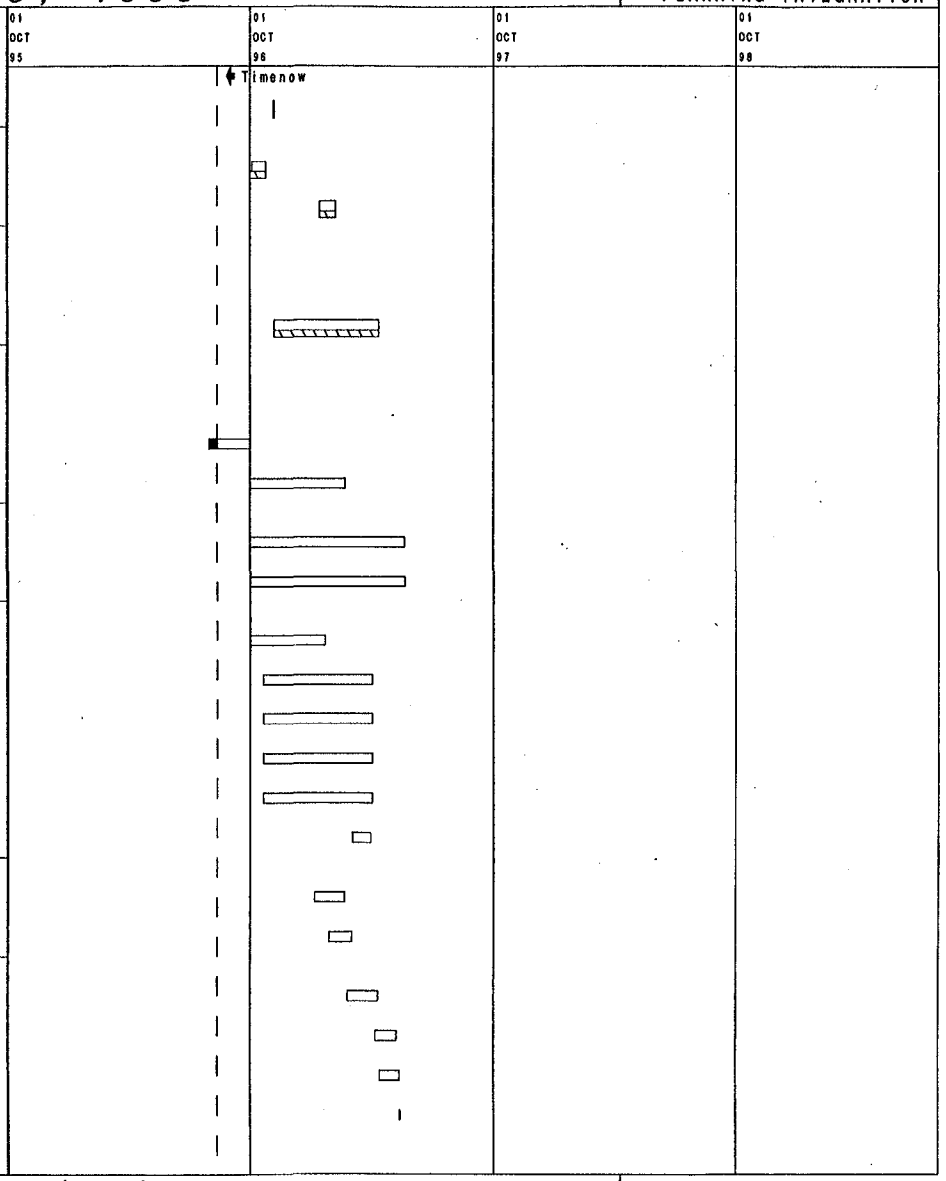
4 DOE APPROVAL TO TRANSFER FUEL	05NOV96 / 05NOV96	06NOV96 / 06NOV96
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE #1 - ATR	04OCT96 / 01OCT96	24OCT96 / 24OCT96
BATCHING SCHEDULE #2 - HFBR; MURR; ORR	14JAN97 / 14JAN97	06FEB97 / 06FEB97
1.2.3.1.1.1.2.2.1.2.1 PHASE VIII - GROUP 1 FUEL TRANSFERS		
PHASE VIII - GROUP 1 (ALUMINUM PLATE FUEL)		
FUEL TRANSFERS		
DRY CANNING (to IFSF)	07NOV96 / 07NOV96	12APR97 / 12APR97
1.2.3.1.1.1.2.2.4.1.4 PHASE VIII - GROUP 2 PREPARATIONS		
PHASE VIII - GROUP 2 (ALUMINUM TRIGA, WAPD, BMI-SPEC)		
PROJECT DEFINITION		
1A FUEL MOVEMENT PLAN	01AUG96	30SEP96
2 MOCK-UP	01OCT96	20FEB97
WORK ORDERS TO BE DEVELOPED		
TOOL #1	01OCT96	20MAY97
TOOL #2	01OCT96	20MAY97
SAFETY DOCUMENTATION		
1 CSE's	01OCT96	21JAN97
1 SAFETY ASSESSMENT	21OCT96	02APR97
1A SAFETY ASSESSMENT	21OCT96	02APR97
3A REVISE TS 4.12	21OCT96	02APR97
4A REVISE TS 4.5TRQ2	21OCT96	02APR97
5 ESF VERIFICATIONS	04MAR97	31MAR97
PROCEDURES & TRAINING		
PROCEDURE - PHASE VIII FTG2	06JAN97	19FEB97
TRAINING - PHASE VIII FTG2	28JAN97	02MAR97
CERTIFICATION OF READINESS		
1 MANAGEMENT SELF ASSESSMENT	24FEB97	10APR97
2 READINESS ASSESSMENT	07APR97	08MAY97
3 OPERATIONAL REVIEW	14APR97	12MAY97
4 DOE APPROVAL TO TRANSFER FUEL	13MAY97	13MAY97



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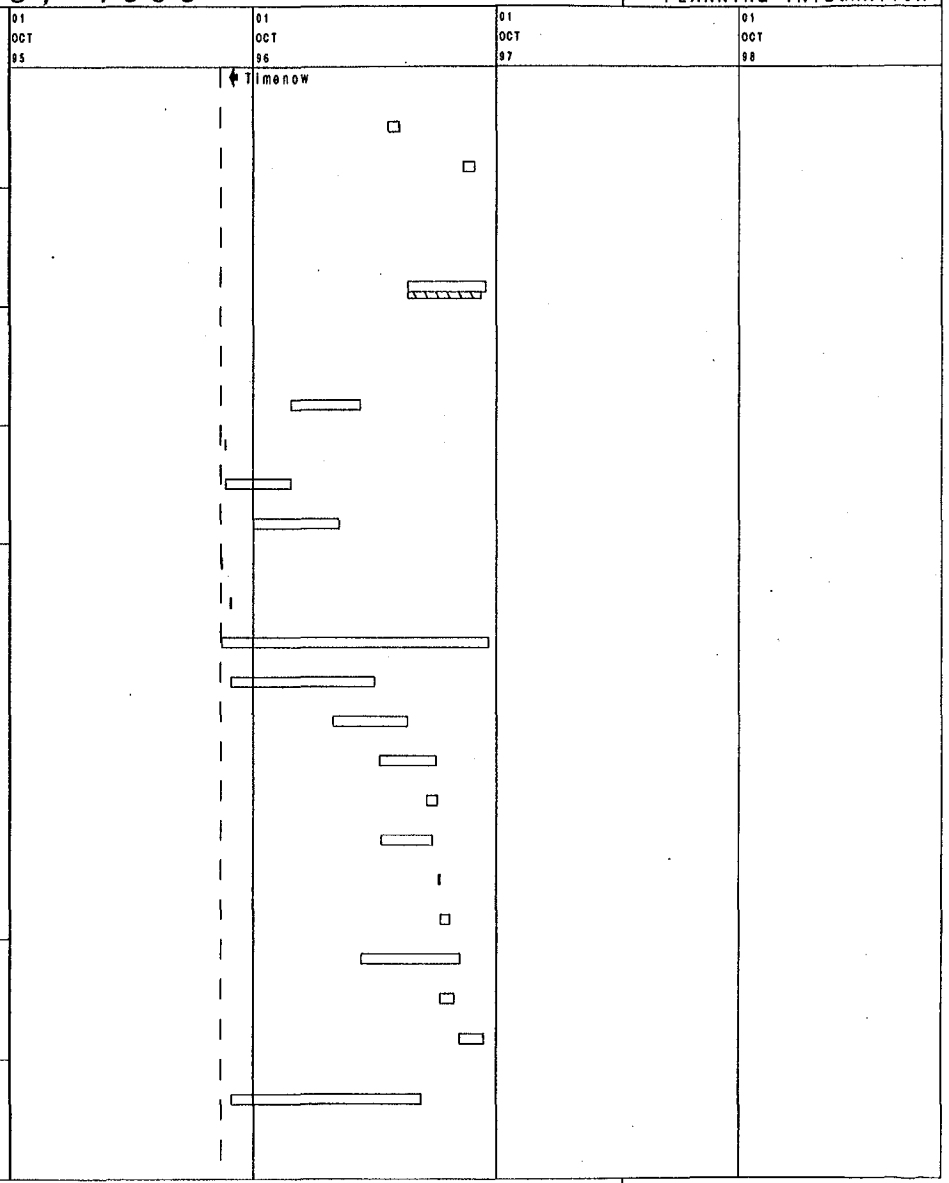
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE #1 - TRIGA ALUMINUM	22APR97	08MAY97
BATCHING SCHEDULE #2 - WAPD/BMI-SPEC	12AUG97	28AUG97
1.2.3.1.1.1.2.2.4.2.4 PHASE VIII - GROUP 2 FUEL TRANSFERS		
▶ PHASE VIII - GROUP 2 (ALUMINUM TRIGA, WAPD, BMI-SPEC) FUEL TRANSFERS		
DRY CANNING (to IFSF)	22MAY97 / 22MAY97	14SEP97 / 07SEP97
1.2.3.1.1.1.2.2.4.1.5 PHASE VIII - GROUP 3 PREPARATIONS		
▶ PHASE VIII - GROUP 3 (SIR, & GFO's) PROJECT DEFINITION		
1 STATE REQUEST FOR DRY STORAGE	27NOV96	10MAR97
1A SCOPING STUDY for SIR	20AUG96	20AUG96
1B FUEL MOVEMENT PLAN for SIR	21AUG96	26NOV96
1C MOCK-UP for SIR	01OCT96	06FEB97
2 GFO DETERMINATION METHOD	14AUG96	14AUG96
2 VALUE ENGINEERING SESSION for GFO's	27AUG96	28AUG96
2A FUEL MOVEMENT PLAN for GFO's	15AUG96	18SEP97
3 PROCURE U-DETECTION EQUIPMENT	29AUG96	31MAR97
3B PROCEDURE - U-DETECTION SCAN (GFO's)	29JAN97	19MAY97
3C TRAINING - U-DETECTION SCAN (GFO's)	08APR97	01JUL97
3D OPERATIONAL REVIEW	18JUN97	03JUL97
3E U-DETECTION SCAN "COLD" TESTS	11APR97	26JUN97
3F DOE APPROVAL TO SCAN	07JUL97	08JUL97
3G U-DETECTION SCAN	09JUL97	22JUL97
4 PROCEDURE - SCAN BASIN FLOOR	12MAR97	06AUG97
4A TRAINING - SCAN BASIN FLOOR	09JUL97	29JUL97
4B "RAKING" OF N/M BASIN	07AUG97	11SEP97
WORK ORDERS TO BE DEVELOPED		
DESIGN/ASSEMBLE U-DETECTION EQUIPMENT	29AUG96	09JUN97



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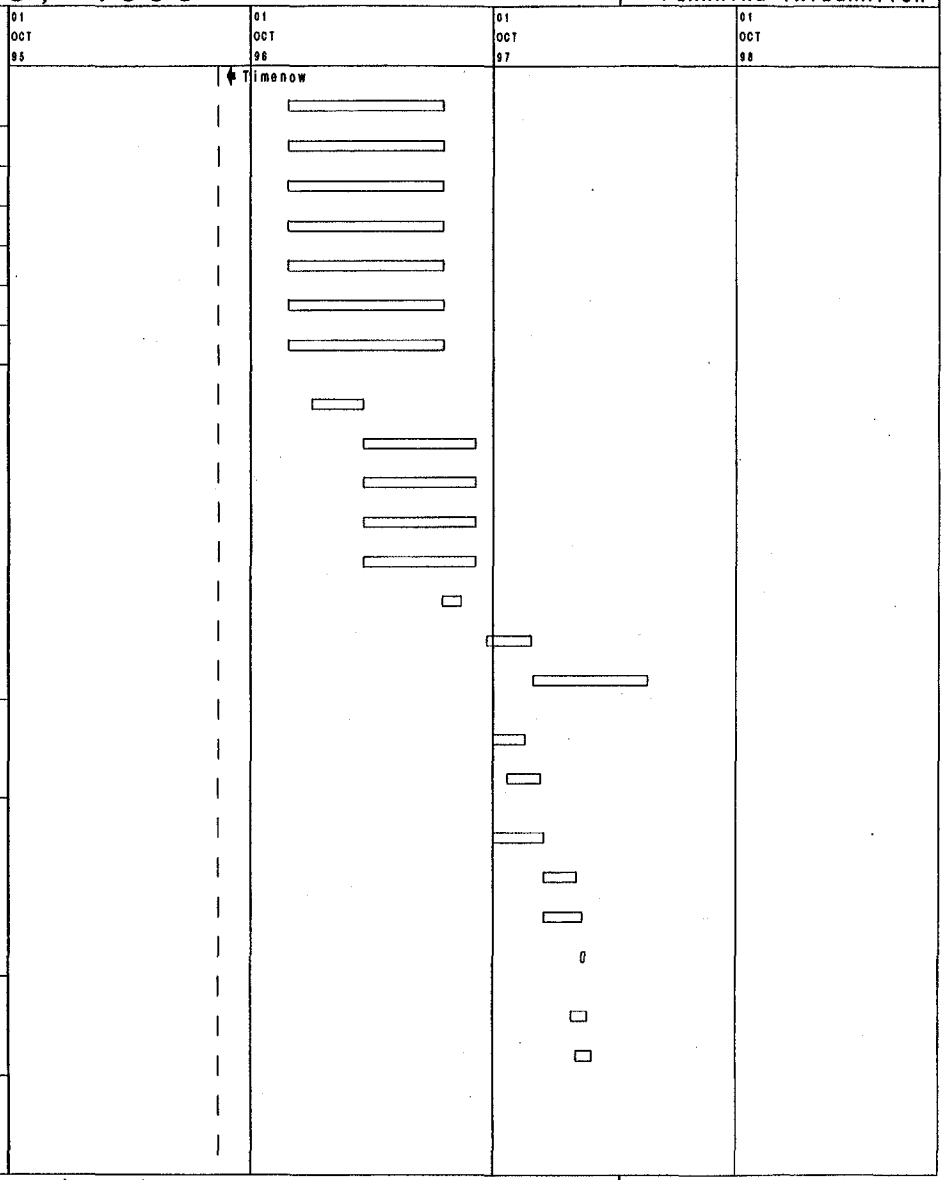
TBD#1	27NOV96	17JUL97
TBD#2	27NOV96	17JUL97
DES/MOD N/M BASIN SNAP PAN for REPACKING	27NOV96	17JUL97
DES/FAB SIR CAN HOLDING DEVICE	27NOV96	17JUL97
DES/FAB SUPPORT PLATE (SIR)	27NOV96	17JUL97
DES/FAB TOOLS TO OPEN/PUNCTURE CANS (SIR)	27NOV96	17JUL97
DES/FAB R. INSERT FOR IFSF (SIR)(If needed)	27NOV96	17JUL97
SAFETY DOCUMENTATION		
1 CSE's FOR STORAGE (SIR)	02JAN97	19MAR97
1A SAFETY ASSESSMENT - SIR REPACK/TRANSFER	20MAR97	04SEP97
2A SAFETY ASSESSMENT - BASIN SCAN	20MAR97	04SEP97
3A TSTRQ2 4.5 CHANGES	20MAR97	04SEP97
4A PSD/TS 4.12 CHANGES	20MAR97	04SEP97
5 ESF VERIFICATIONS	17JUL97	13AUG97
7 CSE (for GFO's transfer)(If required)	22SEP97	27NOV97
7A SAFETY ASSESSMENT - GFO's	01DEC97	20MAY98
PROCEDURES & TRAINING		
PROCEDURE - GFO's	01OCT97	17NOV97
TRAINING - GFO's	23OCT97	11DEC97
CERTIFICATION OF READINESS		
1 MANAGEMENT SELF ASSESSMENT	01OCT97	16DEC97
2 READINESS ASSESSMENT	17DEC97	03FEB98
3 OPERATIONAL REVIEW	17DEC97	11FEB98
4 DOE APPROVAL TO TRANSFER FUEL	12FEB98	16FEB98
DOCUMENTATION FOR FUEL TRANSFERS		
BATCHING SCHEDULE #2	27JAN98	19FEB98
BATCHING SCHEDULE #3	03FEB98	26FEB98



Legend
- ■ = In progress
- □ = Early
- ▥ = Critical
- ▨ = Baseline

Milestone Legend

△ = Regulatory Milestone (E1) — ⚡ = Key Milestone (I1) — △ = Milestone
☆ = DOE-ID CPAF Milestone (E2) — ◇ = Major Milestone (I2) — ⇩ = Early/Late Projection
✧ = DOE-HQ/ID Milestone (E3) — ▽ = Minor Milestone (I3)

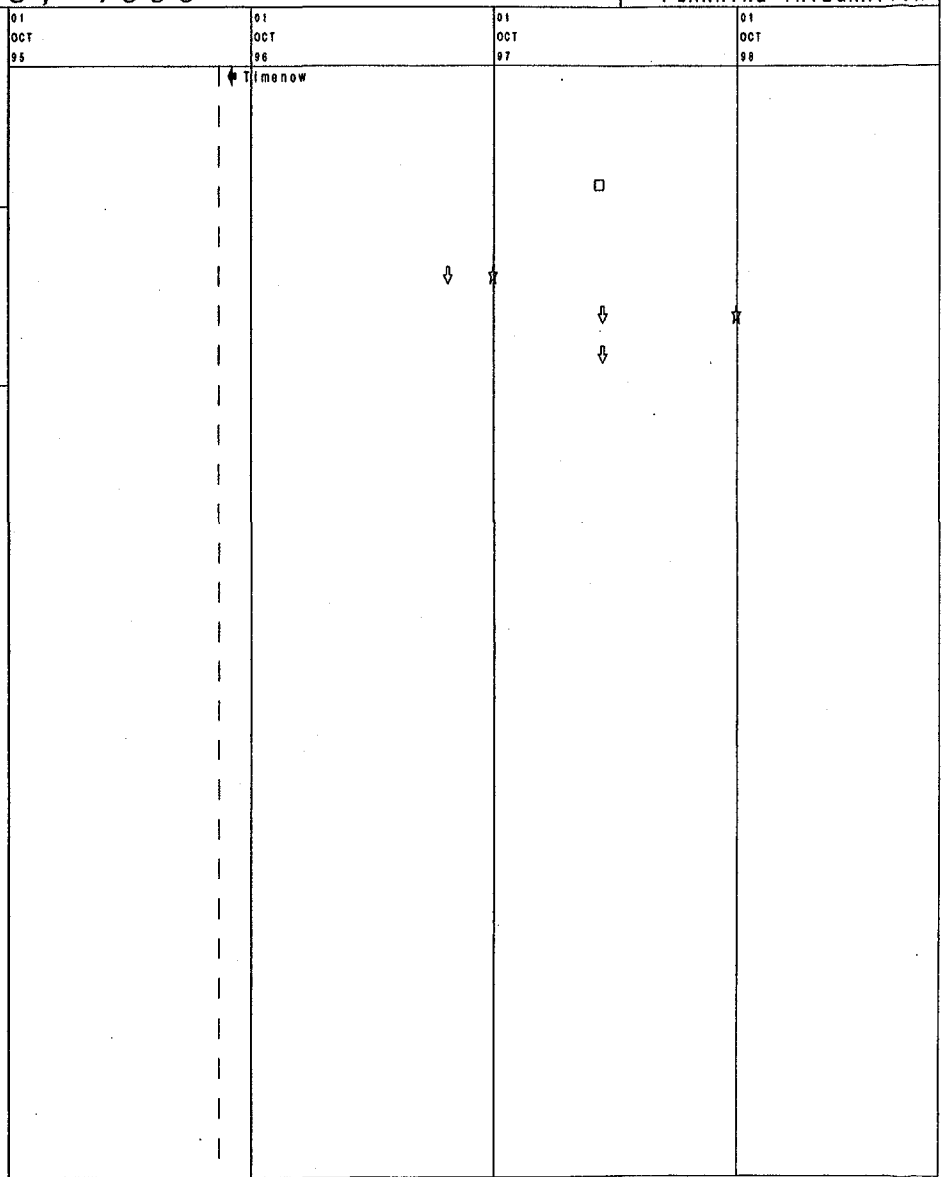
LITCO

Report: G270B
Project: CPP603
Time Now: 13AUG96

CPP-603 SOUTH BASIN OPERATIONS SCHEDULE
SUMMARY SCHEDULE
AUG 15, 1996

Prepared by:
PLANNING INTEGRATION

	E Start / B Start	E Finish / B Finish
1.2.3.1.1.1.2.2.4.2.5 PHASE VIII - GROUP 3 FUEL TRANSFERS		
▶ PHASE VIII - GROUP 3 (SIR, & GFO's)		
FUEL TRANSFERS		
DRY CANNING (to IFSF)	02MAR98	14MAR98
▶ PHASE VIII - GROUP 3 (SIR, & GFO's)		
COMPLETE TRANSFER OF 465 FHU's FROM S. BASIN	24JUL97	24JUL97
	30SEP97	30SEP97
COMPLETE TRANSFER OF REMAINING 270 FHU's	14MAR98	14MAR98
	30SEP98	30SEP98
SNF from CPP-603 FUEL STORAGE BASINS COMPLETE	14MAR98	14MAR98
	31DEC00	31DEC00



Legend
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Milestone Legend

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✧=DOE-HQ/ID Milestone (E3) ∀=Minor Milestone (I3)

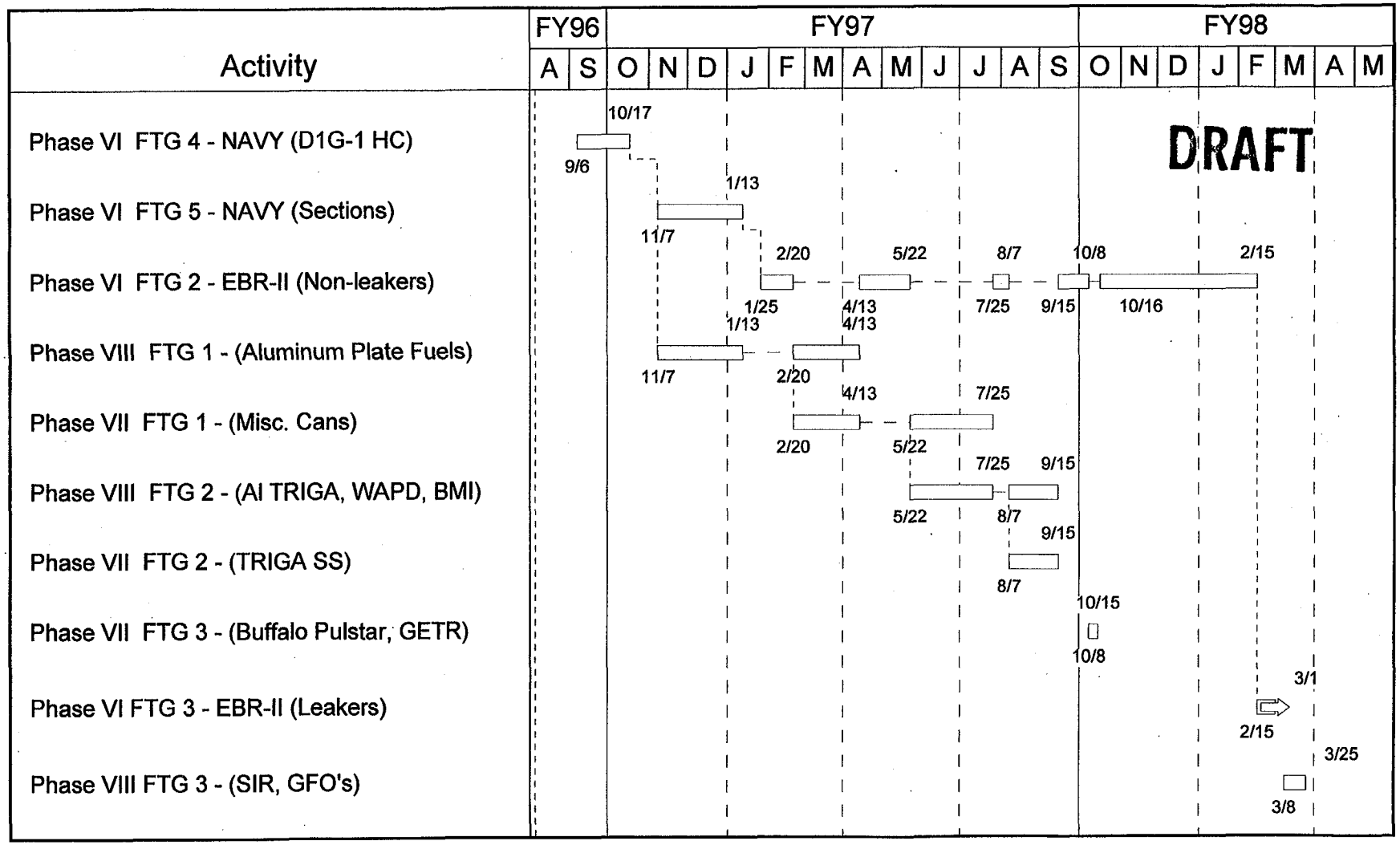
PROGRESS CURVES

CPP 603 South Basin Fuel Relocation

Time Scaled Logic Diagram

Rev. 0

8/5/96



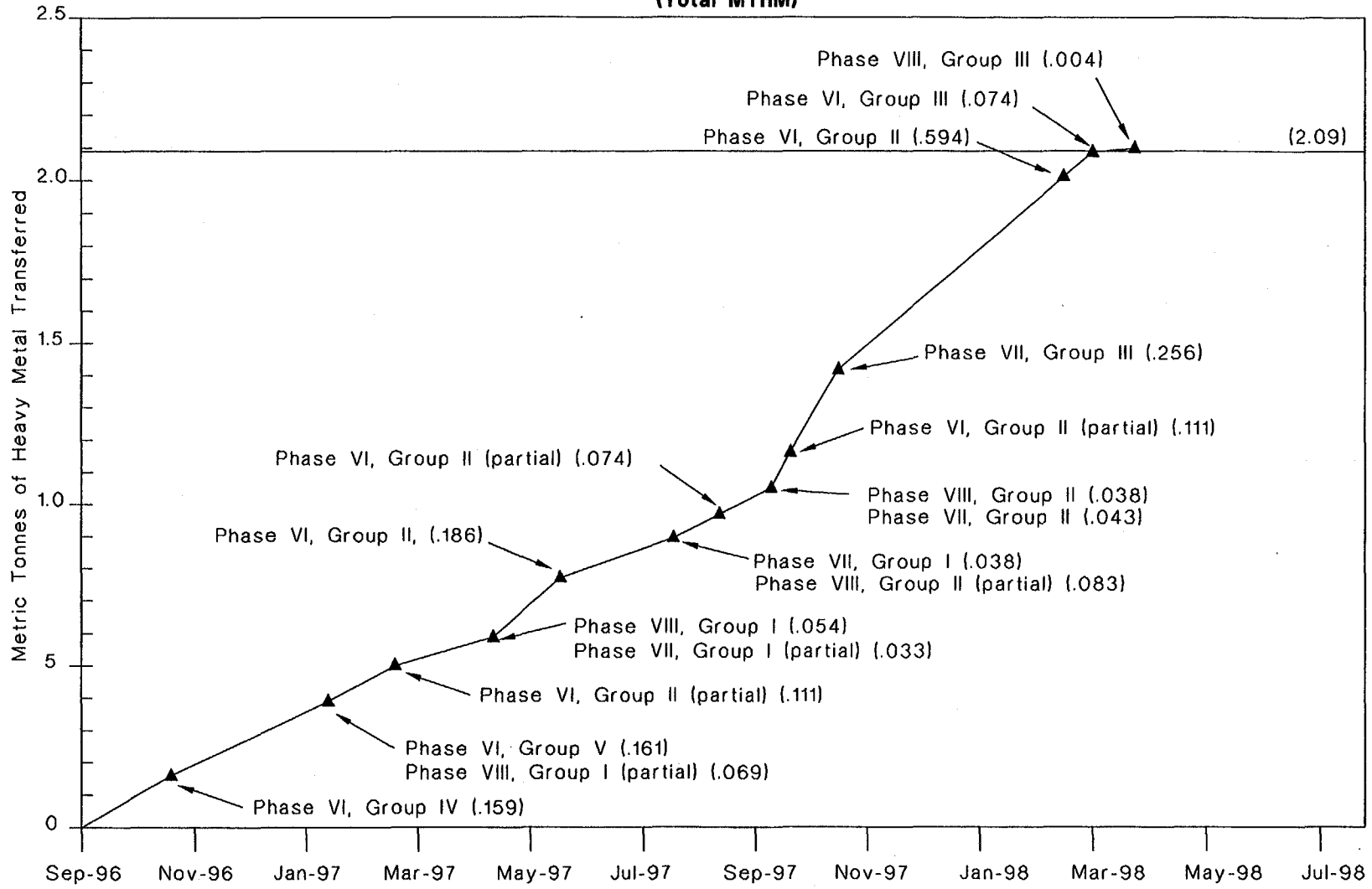
Prepared by Planning Integration

☆ Court Order Date

_____ Original Baseline Dates

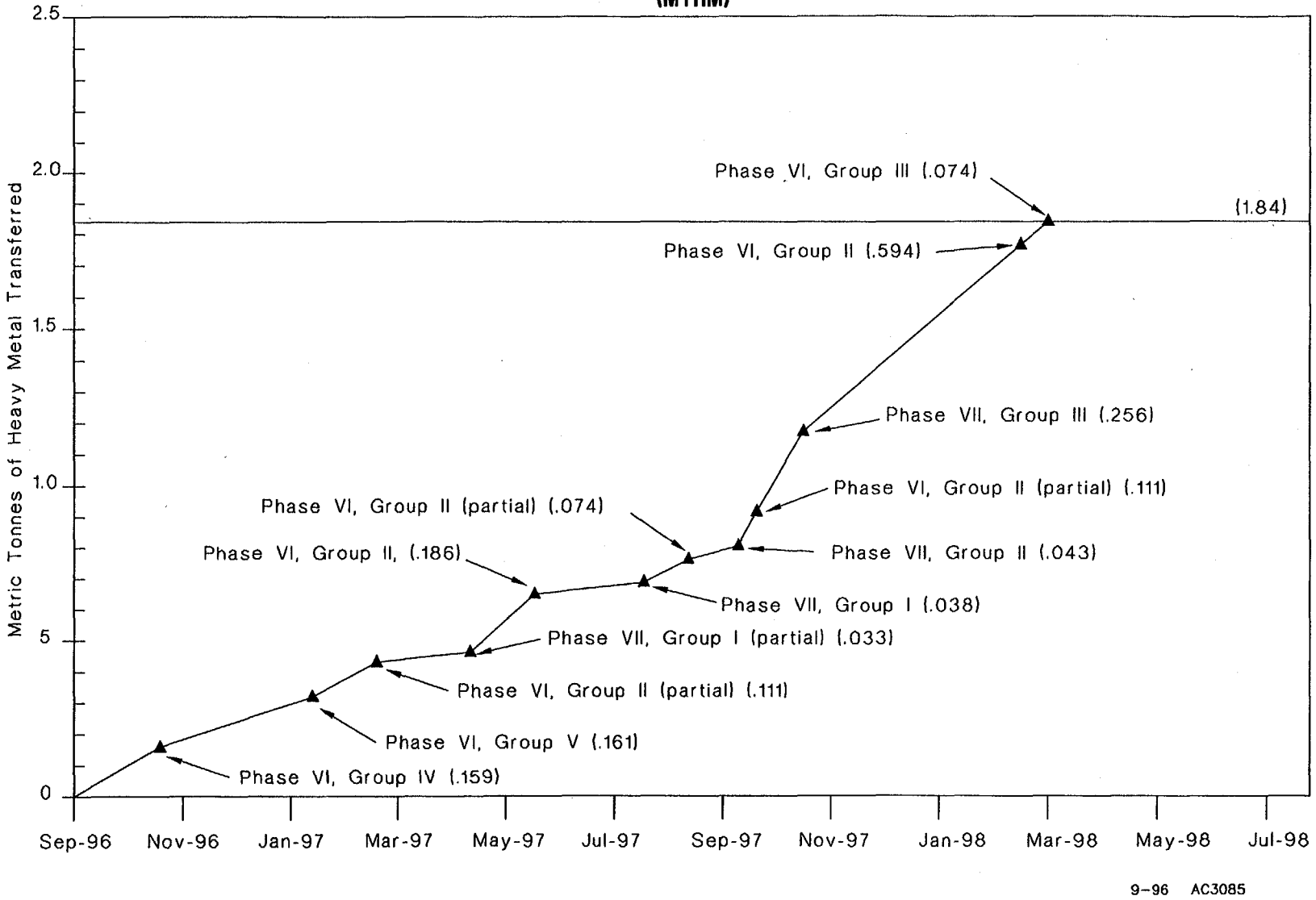
fmoves.ml4

Milestone IP-3.6-005
Scheduled Fuel Transfers from CPP-603 South Basin
(Total MTHM)



8-96 AC3049

Milestone IP-3.6-046
Scheduled Fuel Transfers from CPP-603 South Basin
Not Requiring Overpacking
(MTHM)



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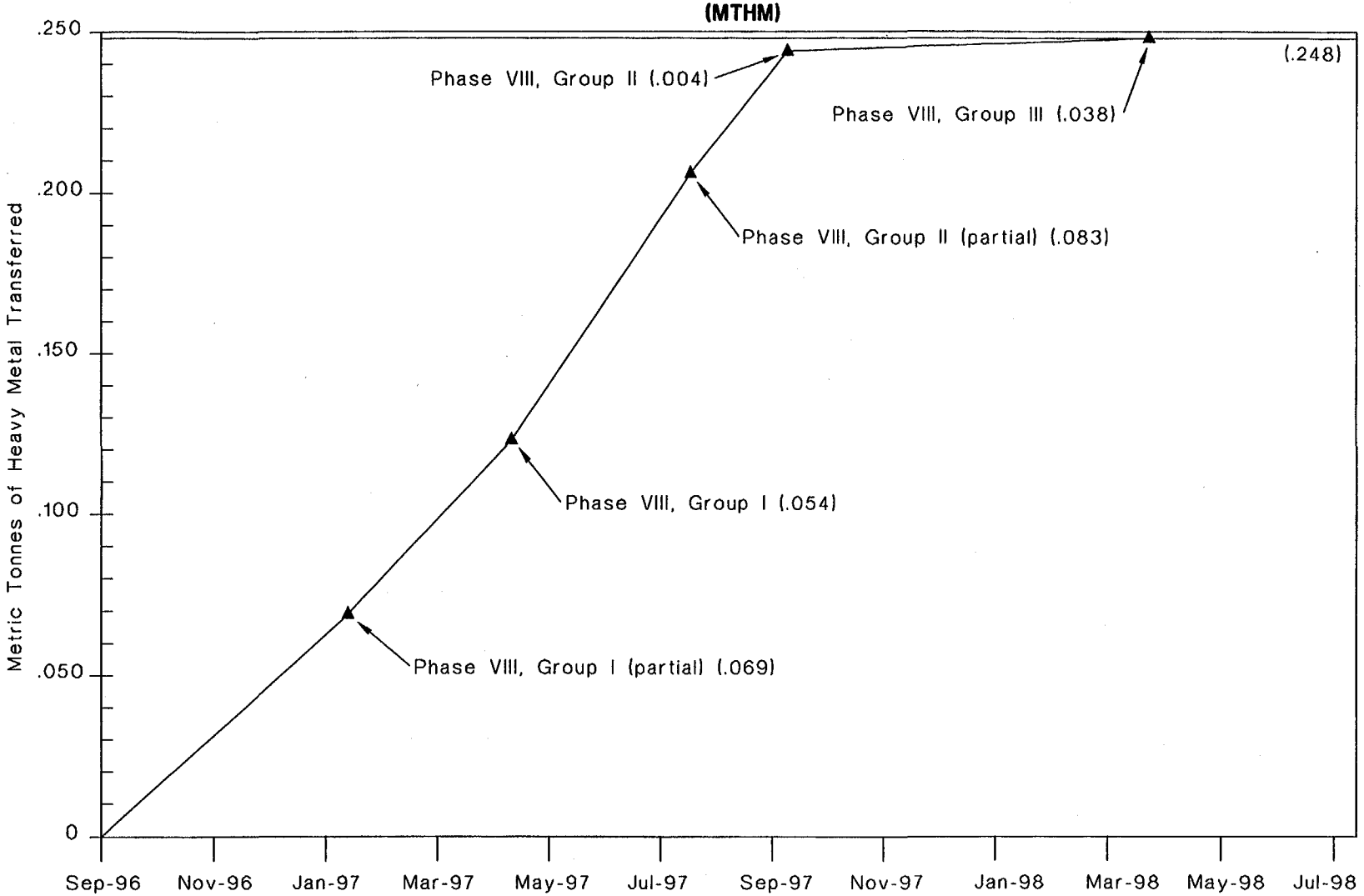
Remaining Phase VIII
Scheduled Fuel Transfers from CPP-603 South Basin
(MTHM)



9-96 AC3086