**Idaho
National
Engineering
Laboratory**

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September 1996

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

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

Volume I

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Published September 1996

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INEL Spent Nuclear Fuel Department
Lockheed Martin Idaho Technologies Company
Idaho Falls, Idaho 83415**

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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).

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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
<i>Completed before milestone established</i>	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
<i>Completed before milestone established</i>	Movement of first 189 units from the North and Middle Basins to CPP-666 by September 30, 1994	completed July 26, 1994
<i>IP-3.6-045</i>	Movement of South Basin Fuels—Begin by June 1, 1995	completed May 12, 1995
<i>IP-3.6-043</i>	Movement of second 189 units from the North and Middle Basins to CPP-666 by December 31, 1995	completed September 11, 1995
<i>IP-3.6-044</i>	Removal of all SNF from North and Middle Basins by December 31, 1996	completed August 2, 1996
<i>IP-3.6-046</i>	Removal of all SNF not requiring overpacking by December 31, 1998	scheduled to start October 1, 1996
<i>IP-3.6-047</i>	Dry Storage Overpacking Station construction and startup by December 31, 1998	installed, currently performing Readiness Assessment (RA)
<i>IP-3.6-005</i>	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

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NUCLEAR OPERATIONS

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.

CPP-666
 Fuel Storage area
 8-96 AC3020 REV 0

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

performed using a 130-ton bridge crane (unloading pools are $19 \times 19 \times 36$ ft deep and $20 \times 24 \times 44$ 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 $10 \times 221 \times 31$ 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

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

CPP-603
irradiated fuel
storage facility
8-96 AC3019 REV 0

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.

AC3017

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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Revision 1

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Volume II

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SUMMARY LEVEL SCHEDULE
(Fuel Moves by Phase)

**DETAILED LEVEL SCHEDULE
(Fuel Moves by Phase)**

Report: G271
Project: CPP603
Time Now: 13AUG96

Prepared by:
PLANNING INTEGRATION

AUG 15 . 1996

ID#	Description	Resp. Party	RDur	E Start	E Finish	01 OCT 95	01 OCT 97	01 OCT 98
23740	SNAP/AI	RL HAWK	35	21JUN97	25JUL97			
1.2.3.1.1.2.2.4.2.2 PHASE VII - GROUP 2 FUEL TRANSFERS								
PHASE VII - GROUP 2 (TRIGA-SST)								
FUEL TRANSFER - PHASE VII GROUP 2								
21000	TRIGA SST	RL HAWK	39	07AUG97	14SEP97			
1.2.3.1.1.2.2.4.2.3 PHASE VII - GROUP 3 FUEL TRANSFERS								
PHASE VII - GROUP 3 (Buffalo Pulstar, GETR)								
FUEL TRANSFER - PHASE VII GROUP 3								
21960	GETR FILTERS	RL HAWK	4	08OCT97	11OCT97			
21480	BUFFALO PULSTAR	RL HAWK	4	12OCT97	15OCT97			
REMOVAL OF ALL SNF W/O OVERPACKING COMPLETED								
R3032	IP-3.6-046	STUBBLEFIELD	0	15OCT97	15OCT97			
1.2.3.1.1.2.2.1.1.1 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	23OCT98			
1.2.3.1.1.2.2.1.2.1 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	13JAN97			
23290	MURR	RL HAWK	20	20FEB97	11MAR97			
23300	HFR	RL HAWK	17	12MAR97	28MAR97			
23305	ORR	RL HAWK	15	29MAR97	12APR97			
1.2.3.1.1.2.2.4.2.4 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	24JUL97			
23311	TRIGA ALUMINUM (PART 2)	RL HAWK	32	07AUG97	07SEP97			
24040	WAPD/BMI Spec	RL HAWK	7	08SEP97	14SEP97			

Legend

- = In progress
- = Early
- = Critical
- = Baseline

Milestone Legend

- A = Regulatory Milestone (E1)
- ☆ = DOE-ID CPAF Milestone (E2)
- ◆ = DOE-HQ/ID Milestone (E3)
- * = Key Milestone (I1)
- ◇ = Major Milestone (I2)
- ▽ = Minor Milestone (I3)
- △ = Milestone
- ↓ = Early/Late Projection

FUEL MOVEMENT PREPARATIONS
(Fuel Moves by Phase)

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)

Report: G2708
Project: CPP603
Time Now: 13AUG96

Prepared by:
PLANNING INTEGRATION

AUG 15, 1996

Legend

■ = In progress
□ = Early
▨ = Critical
▤ = Baseline

Milestone Legend

A = Regulatory Milestone (E1) ★ = Key Milestone (I1) Δ = Milestone
☆ = DOE-ID CPAF Milestone (E2) ◇ = Major Milestone (I2) ◊ = Early/Late Projection
✧ = DOE-HQ/ID Milestone (E3) ▼ = Minor Milestone (I3)

Report: G270B
Project: CPP803
Time Now: 13AUG96

**CPP-603 SOUTH BASIN OPERATIONS SCHEDULE
SUMMARY SCHEDULE**

Page : 13

Prepared by:
PLANNING INTEGRATION

AUG 15, 1996

E Start	E Finish
B Start	B Finish

01
OCT
95

01
0C
96

01
0C
97

	01
	0C
	98

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) 02M

02MAR98 14MAR98

► PHASE VIII - GROUP 3 (SIR, & GFO's)
COMPLETE TRANSFER OF 465 FHU's FROM S. BASIN

24 JUL 97 24 JUL 97

COMPLETE TRANSFER OF REMAINING 270 FHU's

14MAR98 14MAR98

SNF from CPP-603 FUEL STORAGE BASINS COMPLETE

14MAR98 14MAR98

31DEC00 31DEC00

Timenew

1

✶

1

1

•

Legend

= In progress
= Early
= Critical
= Baseline

Milestone Legend

A=Regulatory Milestone (E1) ✕=Key Milestone (I1) Δ=Milestone
 ☆=DOE-ID CPAF Milestone (E2) ◇=Major Milestone (I2) ⇩=Early/Late Projection
 ◆=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

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

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

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