J. White (RI)

From: "Jones, T. R." <tjones2@entergy.com>
To: <jrw1@nrc.gov>
Date: 4/28/06 4:40PM
Subject: FW: Submittal to NRC

From: Hinrichs, Gary H
Sent: Friday, April 28, 2006 4:25 PM
To: Jones, T. R.
Subject: Submittal to NRC

As per our Tuesday Conference call we promised a Unit 1 Dry Cask Storage plan and schedule.

<<dry cask project plan rev 1 (3).doc>> <<Unit 1 Dry Cask Storage Level II.doc>>

CC: <jdn@nrc.gov>

B-35

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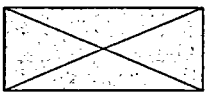
<<dry cask project plan rev 1 (3).doc>> <<Unit 1 Dry Cask Storage Level II.doc>>



Entergy Nuclear Northeast
Removal, Relocation and Storage of Spent Fuel
from the IPEC Unit 1 Spent Fuel Pool
Project Plan

PROJECT PLAN

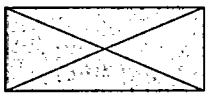
for

Project No.:_____

Project Description: **Removal, Relocation and Storage of Spent Fuel from the IPEC Unit 1 Spent Fuel Pool**

NOTE: This Project Plan is a revision of an earlier plan issued in August, 2005, that addressed SFP clean up and fuel inspection only.

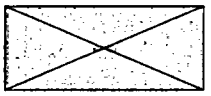
Prepared:			
	Signature	U1 DCS Project Mgr	Date
Concurrence:			
	Signature	U2 DCS Project Mgr	Date
Concurrence:			
	Signature	PS&O Dept Mgr	Date
Concurrence:			
	Signature	Operations Mgmnt	Date
Concurrence:			
	Signature	Licensing Mgmnt	Date
Concurrence:			
	Signature	Rad Pro Superintendent	Date
Concurrence:			
	Signature	Rx. Engineering Supv.	Date
Concurrence:			
	Signature	Fuels Engineer	Date
Concurrence:			
	Signature	U1 Dept. Mgr	Date
Approved:			
	Signature	Management Sponsor	Date



SAFETY FOCUS STATEMENT

Safety will be focused on at all times during every phase and every activity of the Unit 1 Dry Cask Storage Project activities. This includes industrial safety (electrical safety, hazardous material and chemical handling, rigging, etc.), nuclear safety and radiological safety.

- Every meeting will start with a discussion of safety and human performance.
- Operating experience will be used for project planning and on an on-going basis.
- Field activities will have daily pre-job briefings including discussions on safety, human performance error traps and operating experience.
- Field activities will be closely monitored by supervision.
- The Corrective Action Program will be fully utilized.
- Project self-assessments and surveillances will be performed periodically and will include safety and human performance as assessment areas.



Entergy Nuclear Northeast
Removal, Relocation and Storage of Spent Fuel
from the IPEC Unit 1 Spent Fuel Pool
Project Plan

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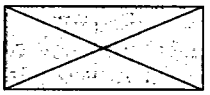

Entergy Nuclear Northeast
Removal, Relocation and Storage of Spent Fuel
from the IPEC Unit 1 Spent Fuel Pool
Project Plan

1.0 Problem Definition

Leakage is occurring from the Unit 1 Spent Fuel Pool (SFP[1]). Remediation of this condition can be accomplished by various options, including dry entombment of the spent fuel within the SFP, relocation of the spent fuel to another pool, or transfer of the spent fuel to dry cask storage at the new IPEC Independent Spent Fuel Storage Installation (ISFSI). This latter option has been determined to be the most prudent course of action such that this project plan primarily focuses on spent fuel removal/storage and ancillary activities. However, the options of dry entombment and relocation to another pool are also reviewed to capture the considerations that led to the selected method of long-term storage.

A project organization chart for this effort is presented in Attachment A.

2.0 Project Objectives

This project is intended to prepare for and execute the offloading of the Unit 1 spent fuel from the SFP to dry cask storage and subsequent movement to the ISFSI. Major activities of this effort include fuel element inspection (completed[2]), placement of fuel elements into individual Damaged Fuel Containers[3] (DFCs) as needed, transfer/placement of fuel elements and/or DFCs into Multi Purpose Canisters (MPCs), placement of MPCs into transfer casks, movement of transfer casks to the Unit 2 Fuel Storage Building (FSB), intercask transfer of the MPCs to long-term storage containers and movement/placement of long-term storage containers to the ISFSI. A simplified flow chart of these activities is presented in Attachment B. A sketch of the primary transfer path activities is shown in Attachment C.

A separate project plan will be developed describing the activities associated with the subsequent drain down and desludging of the SFP.

3.0 Alternatives Considered

3.1 Spent Fuel Entombment

Entombment would be part of a shielded pool storage plan that involves covering the west fuel pool with 2.5-foot thick concrete shielding and then draining the pool to eliminate leakage. This has the advantage of leaving the fuel in place until overall IPEC decommissioning occurs. The primary disadvantage is that the somewhat unique nature of this storage method would require regulatory approval including the potential for public hearings. Preliminary review has indicated the technical feasibility of this approach.

Spent fuel entombment in the SFP has been determined by the project to be non-viable based on licensing uncertainties and associated time considerations.

3.2 Spent Fuel Relocation to East Pool

Relocation of the spent fuel to the east pool would involve establishing the east pool as a viable

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[1] Also referred to herein as the west fuel pool.
[2] Fuel inspections performed demonstrated structural integrity (i.e., no hairline cracks, pin hole leaks, etc.); although necessary, this is not fully sufficient to demonstrate that the fuel is intact per ISG-1 and ANSI M14.33.
[3] A damaged fuel container is specifically designed to contain a single fuel assembly with known or suspected defects, such as ruptured, severed or cracked fuel rods.

storage location, transferring the fuel and then draining the west fuel pool to eliminate leakage. Some of the actions in 3.3 below would also likely be required for this option. The primary advantage of this option is that the east pool was originally designed for spent fuel storage such that design intent would be unchanged with little or no licensing impact. Disadvantages are based in part on already-completed inspections of the east pool indicating that the pool surfaces (walls and floor) would require repair/recoating. Additionally, a new gate would be required to facilitate fuel transfer between the west and east pools. These modifications would only provide for an approximate 10-year life after which either further repairs (primarily recoating) would be required or the fuel would be relocated generally consistent with 3.3 below.

Spent fuel relocation to the east pool has been determined by the project to be non-viable due to economic considerations and the relatively short (10 year) service life of this option.

3.3 Spent Fuel Transfer

A direct transfer of Unit 1 spent fuel to dry cask storage would require the addition of significant infrastructure that currently does not exist. Two alternative approaches each involve transfer of the spent fuel to the Unit 2 Fuel Handling Building.

Option A: Transfer the spent fuel to a wet intra-unit transport cask, move this cask to the Unit 2 Fuel Handling Building and offload the Unit 1 spent fuel into the Unit 2 spent fuel pool. The Unit 1 spent fuel could then be transferred to dry cask storage at a later time. This option would require a site licensing amendment.

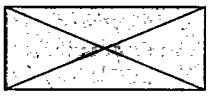
Spent fuel transfer to the Unit 2 spent fuel pool has been determined by the project to be non-viable based on licensing, economic and Unit 2 operational considerations.

Option B: Transfer the spent fuel to a dry transfer cask, move the cask to the Unit 2 Fuel Handling Building where a new gantry crane would be used to perform an inter-cask transfer (i.e., stack-up) of the MPC to the long-term storage container, which would then be moved to the ISFSI.

Option B has been determined by the project to be the preferred option for transfer of spent fuel from the Unit 1 SFP. This conclusion has been reached by general considerations of timeliness, economics, effects on Unit 2/3 operations and licensing. Relative to licensing in particular, dry cask storage within an outdoor ISFSI is an established industry approach for providing long-term storage capacity. The approach has been implemented successfully both at Entergy plants and at other nuclear facilities. 10CFR72 ("Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste") grants a General License for owning and operating an ISFSI to all holders of a Part 50 power reactor operating license provided the licensee satisfies various conditions given within 10CFR72. Various dry cask vendors have obtained NRC approval for their storage systems, receiving an approved final safety analysis report and certificate of compliance. This documentation is one of the elements of the written report required by 10CFR72.212.

A subset of the Option B process involves DFCs, for which a feasibility study is needed to establish whether full or partial use of DFCs is appropriate.

4.0 Action Plan



Entergy Nuclear Northeast
Removal, Relocation and Storage of Spent Fuel
from the IPEC Unit 1 Spent Fuel Pool
Project Plan

NOTE: *There is currently a separate project underway involving transfer of spent fuel to dry cask storage from Units 2 and 3. Some of the same equipment to be used for the Units 2 and 3 efforts can be used for the Unit 1 efforts. Additionally, portions of the Unit 1 plan described below involve regions of Unit 2. As a result, close coordination between these two projects should be maintained to maximize efficiency of equipment use and complimentary activities and to minimize duplication of effort.*

The activities described in this action plan will fall under the responsibility of the Unit 1 dry cask storage team, the Unit 2 dry cask storage team or the Planning, Scheduling and Outage Management Department (PS&O). Specific responsibility for each activity below is identified in the heading for each item.

Current efforts include use of Holtec casks and equipment for much of the transfer/storage process. Reference herein to the load transfer cask and long-term storage containers are equivalent to Holtec HI-TRAC 100 Version D Transfer Cask and HI-STORM 100S Overpack, respectively. Sequencing of activities described below should be in accordance with the attached schedule (see Section 6.0).

4.1 Spent Fuel Inspection -- **Unit 1 Project Team Responsibility**

Prior to initiation of the tasks described below, an ALARA plan should be prepared, reviewed and approved that addresses all aspects of SFP spent fuel assembly inspection.

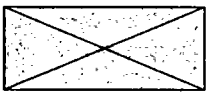
Task I – Fuel Inspection (to be performed by sipping, if deemed necessary, based on feasibility study – see 4.5, Task I below)

- Identify equipment/hardware needed to support fuel inspection. Procure such items as required and in a timely manner to support SFP inspection. For existing tools needed to lift the fuel bundles from the baskets, tool refurbishment may be required.
- Identify water level necessary to facilitate fuel inspection via sipping. If required, identify increased height requirements on SFP gates associated with this water level.
- Procure as required, gate extensions to increase gate height (see 4.2, Task IV below).
- Raise the level of the pool water sufficient to allow for fuel inspection via sipping.
- Prepare, review and approve fuel inspection procedure.
- Ensure proper training and qualification of personnel for sipping operations.
- Determine if sipping for this age fuel will provide valid indications.
- Perform sipping operation on each fuel element to identify the presence of specific radioactive fission products.
- Where releases are acceptable, identify as such and return fuel to basket. Where sipping samples are unacceptable, identify as such for transfer to DFCs. Identification of damaged fuel should be consistent with ANSI N14.33-2005 and NRC ISG-1.
- Identify water level necessary to transfer fuel elements to DFCs/MPC in Cask Load Pool. If required, identify increased height requirements on SFP gates associated with this water level.
- Procure as required, gate extensions to increase gate height (see 4.2, Task IV below).
- Raise the level of the pool water sufficient to allow for fuel element transfer to DFCs/MPC.

4.2 U1 Infrastructure Modifications/Evaluations -- **Unit 1 Project Team Responsibility**

Task I – Procedure Development and Training

- Develop sequence and handling plan for all activities associated with removal, relocation and long-term storage of spent fuel.



- Review/approve sequence and handling plan.

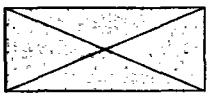
Task II – Consequence Analysis
- Review/evaluate existing consequence analyses from other site(s) (e.g., River Bend).
- Develop consequence analysis for all activities associated with removal, relocation and long-term storage of spent fuel. Address consequences of U1 crane not being single failure proof including determination of additional requirements for not being single failure proof.
- Review/approve consequence analysis.

Task III – Transport Path and Floor Loading Evaluation
- Perform transport path evaluation including evaluation of floor loading at all locations along path. Evaluation should consider geometry of transfer cask and long-term storage container including stack up, ALARA (including ventilation, adequacy of existing rad monitoring), structural capabilities, buried/embedded utilities, load testing, licensing, etc. Data and design criteria for the transfer cask and long-term storage container should be provided by the vendor supplying the transfer casks and storage containers. Transfer from U1 fuel-handling area to U2 FSB will be done using Low Profile Transporter (LPT) (see Task VII below) and the Transport Crawler utilized for similar activities for Units 2 and 3.
- Review/approve transport path evaluation.
- Prepare mod package for any changes needed to accommodate transport.
- Review/approve mod package.
- Prepare work order to install any needed transport path changes.
- Review/approve work order.
- Procure materials needed to implement work order.
- Implement work order to make any needed transport path changes.

Task IV – West Fuel Pool Gate Modification
(NOTE: Any necessary modifications should be completed prior to sipping and/or fuel element transfer to and placement into DFCs/MPCs.)
- Prepare and approve, as required, mod package for increasing height of west fuel pool gates or use of seal plates.
- Prepare and approve work order package.
- Procure material necessary to implement mod package.
- Install modification.

Task V – Unit 1 Fuel Handling Area Overhead Bridge Crane Review
(NOTE: Any necessary upgrades should be completed prior to placement of the MPCs and load transfer casks into the Cask Load Pool. The intent of this activity is to assure that the overhead crane is refurbished/restored to its design capacity.)
- Perform formal assessment of crane and intended applications relative to requirements of NUREG-0621 (Ref. 3) (Control of Heavy Loads) and NUREG-0554 (Single-Failure Proof Cranes). Assessment should address potential heavy load drop and effects (including offsite dose). Licensing effects should be considered.
- Review/approve crane assessment.
- Evaluate crane to determine any necessary maintenance and/or upgrades.
- Procure parts as necessary to perform upgrades.
- Develop test requirements for crane.
- Develop work order for maintenance and/or necessary upgrades.
- Implement work order.
- Perform load testing and other inspections per requirements.

Task VI – Unit 1 Fuel Handling Area Cask Load Pool Clean out and Assessment
- Pump down/clean out as required the Cask Load Pool.
- Inspect/evaluate pool base to determine if any modifications are required to sustain loads from MPC and load transfer cask.



- If required, prepare/approve mod package for pool base or leveling plate.
- If required, prepare/issue work order for pool base modifications or leveling plate installation.
- As needed, procure parts for pool base modifications/leveling plate installation.
- As needed, remove existing stand.
- As needed, install stand for lift yoke (see 4.5, Task IV).
- As needed, remove/replace step platform.
- As needed, install impact limiters.
- As needed, implement modification.

Task VII – Design, Fabrication and Installation of Low Profile Transport System
- Design Low Profile Transporter (LPT) system for transport of long-term storage container from U1 fuel handling area to location for transfer to transport crawler.
- Prepare, review and approve LPT design modification for attachments to existing IPEC structures.
- Fabricate LPT.
- Receive/inspect LPT and rail system components for LPT.
- Prepare/approve work order for rail system installation.
- Install rail system.
- Perform functional test of LPT system.

4.3 Program Evaluations -- **Unit 1 Project Team Responsibility**

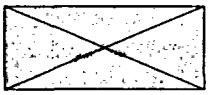
Task I – Environmental and Radiation Protection Evaluation
- Evaluate environmental and radiation protection effects/requirements for all activities associated with removal, relocation and long-term storage of spent fuel.
- Review/approve evaluation.

Task II – 10CFR72.212 Evaluation
- Prepare 50.59 evaluation.
- Develop 72.212 evaluation.
- Review/approve 50.59 and 72.212 evaluations.
- Make preliminary contact with NRC during this process to develop consensus on need for license amendment.

Task III – Tech Spec and Procedure Evaluation
- Review and evaluate effects on Unit 1 Technical Specification, OPS (and related) procedures for all activities associated with removal, relocation and long-term storage of spent fuel.
- Prepare/approve any Tech Spec changes. Submit for NRC review/approval.
- Revise/approve OPS (and related) procedures.

Task IV – Emergency Plan Impact Evaluation
- Evaluate potential impact on Emergency Plan for all activities associated with removal, relocation and long-term storage of spent fuel.
- Modify Emergency Plan as necessary.
- Approve changes to Emergency Plan (if such are needed).
- Provide training on any changes to Emergency Plan.

Task V – Security Plan Impact Evaluation
- Evaluate potential impact on Security Plan for all activities associated with removal, relocation and long-term storage of spent fuel.
- Modify Security Plan as necessary.
- Approve changes to Security Plan (if such are needed).
- Provide training on any changes to Security Plan.



Task VI – QA Plan Impact Evaluation
- Evaluate potential impact on QA Plan for all activities associated with removal, relocation and long-term storage of spent fuel.
- Modify QA Plan as necessary.
- Approve changes to QA Plan (if such are needed).
- Provide training on any changes to QA Plan.

Task VII – Fire Protection Plan Impact Evaluation
- Evaluate potential impact on Fire Protection Plan for all activities associated with removal, relocation and long-term storage of spent fuel.
- Modify Fire Protection Plan as necessary.
- Approve changes to Fire Protection Plan (if such are needed).
- Provide training on any changes to Fire Protection Plan.

4.4 ISFSI -- **Unit 2 Project Team Responsibility**

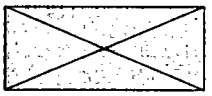
Prepare design and perform construction of ISFSI. Activities to include assessment of associated licensing and operability issues.

4.5 Fabrication and Procurement of Equipment – **Unit 1 Project Team Responsibility**

Task I – DFC Design/Fabrication
- Perform feasibility study for use of DFCs (all or partial) based on cost effectiveness and risks.
- Determine use of DFCs (all or partial) based on feasibility study. If partial use identified as feasible, establish quantity required.
- Coincident with feasibility study, determine if licensing amendment required for either approach using DFCs (all DFCs or partial use of DFCs).
- Prepare DFC design drawings including placement/arrangement within MPC; prepare procedure for transfer of DFCs into MPC and for transfer of fuel elements into DFCs within MPC.
- If licensing amendment required, DFC vendor to submit to NRC for review.
- Fabricate DFCs.
- Receive and inspect DFCs.
- Transport DFCs to U1 fuel handling area.

Task II – Design and Fabrication of MPCs
- Design MPCs including preparation of design drawings.
- Prepare/submit license amendment.
- Prepare procedures specifically for loading, sealing and handling of MPCs.
- Review/approve fabricator's fabrication QA plan.
- Arrange for fab shop QA inspection support.
- Fabricate MPCs; provide fab shop QA inspection oversight.
- Fabricate MPC simulator.
- Receive and inspect MPCs.
- Receive and inspect MPC simulator.
- Transport MPCs to Unit 1 fuel handling area.

Task III – Design and Fabrication of Transfer Cask (Hi-Trac)
- Design load transfer cask. Prepare design drawings.
- Prepare/submit licensing amendment.
- Prepare procedures specifically for loading, sealing and handling load transfer casks.
- Review/approve fabricator's fabrication QA plan.



- Arrange for fab shop QA inspection support.
- Fabricate load transfer casks; provide fab shop QA inspection oversight.
- Receive and inspect transfer cask.

Task IV – Design and Fabrication of Lift Yoke and Associated Slings/Hardware

- Design lift yoke for handling load transfer cask. Prepare design drawings including necessary slings/hardware. Specify requirements for load test of lift yoke.
- Prepare/approve plan for periodic inspection and testing of lift yoke.
- Review/approve fabricator's fabrication QA plan.
- Arrange for fab shop QA inspection support.
- Fabricate lift yoke; provide fab shop QA inspection oversight.
- Perform/witness load test at fab shop or at site, as required.
- Receive and inspect lift yoke.
- Transfer lift yoke to Unit 1 fuel handling area

Task V – Design, Fabrication and Placement of Empty Long-Term Storage Containers (e.g., Hi-Storm)

- Design long-term storage containers (this will be extension of existing efforts for Units 2 and 3, for which fabrication of long-stem storage containers are already planned).
- Prepare procedures specifically for loading, sealing and handling long-term storage containers.
- Review/approve fabricator's fabrication QA plan.
- Fabricate long-term storage containers on site; provide on-site QA inspection oversight.
- Transfer empty long-term storage containers to Unit 2 FSB.

Task VI – Develop License Amendment Request (LAR)

- Prepare LAR for shortened Hi-Trac 100 system.

4.6 Fuel Loading and Dry Cask Operations -- **PS&O Dept Responsibility**

These efforts include transfer of spent fuel to DFCs/MPC, placement of the MPC and load transfer cask into the Unit 1 Cask Loading Pool, lifting the load transfer casks from the Unit 1 Cask Load Pool up to the Unit 1 fuel handling area deck (70' elev), transporting the load transfer cask to the Unit 2 FSB, performing an inter-cask transfer (stack-up) of the MPC from the load transfer cask (Hi-Trac) to the long-term storage cask and transporting the long-term storage cask to the IPEC ISFSI.

Task I – Procedure Development and Training

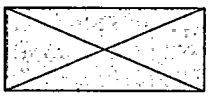
- Develop procedures for dry cask handling.
- Review/approve dry cask-handling procedures.
- Develop training program for sequence and handling including dry cask handling.
- Review/approve training program.
- Perform classroom training.
- Implement job performance measures (JPMs) and perform practical training.

Task II – Dry Runs

- Develop dry run plan.
- Review/approve dry run plan.
- Perform initial dry runs.
- Perform NRC dry runs.
- Raise SFP level in preparation for dry run.

Task III – Final Preparations and Readiness Checks

- Perform readiness checks.
- Establish Infrequently Performed Tests and Evolutions (IPTE) requirements



- Establish management oversight.

Perform Task IVa or IVb depending on results of 4.5 Task I feasibility study above.

Task IVa – Partial Transfer of Damaged Spent Fuel to DFCs/MPC
- Ensure proper training and qualification of personnel prior to any fuel movement; this should include activities associated with transfer and placement of fuel elements into DFCs/MPC.
- Move damaged fuel elements to the Cask Load Pool for transfer to DFCs/MPC.
- Transfer remaining fuel elements to the Cask Load Pool for transfer to DFCs/MPC.

Task IVb – Full Transfer of Spent Fuel to DFCs/MPC
- Ensure proper training and qualification of personnel prior to any fuel movement; this should include activities associated with transfer and placement of fuel elements into DFCs/MPC.
- Transfer all fuel elements to Cask Load Pool. Load all fuel elements into DFCs/MPC.

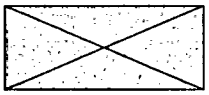
Task V – Placement of MPC and Load Transfer Cask into the Cask Load Pool
- Prepare/review/approve fuel load plan that includes loading sequence.
- Using the overhead crane, place one MPC into a load transfer cask and then into the Cask Load Pool.
- Place empty DFCs (as appropriate) into MPC.
- Transfer damaged and undamaged fuel elements from the Disassembly Pool and place into the MPC/load transfer cask within the Cask Load Pool in accordance with the fuel load plan.
- After MPC/load transfer cask is full, install MPC lid.
- Lift the full MPC/load transfer cask onto the deck at 70' elevation in the Unit 1 fuel handling area and drain, dry and decontaminate the MPC in accordance with applicable procedures. Weld the MPC cover and fill MPC with inert gas in accordance with applicable procedures.

Task VI – Perform Transport from U1 Cask Load Pool to IPEC ISFSI
- Lift load transfer cask from IP1 cask load pool onto deck at 70' elev and place on LPT.
- Move load transfer cask from Unit 1 fuel handling area using LPT.
- Transfer load transfer cask from LPT to transport crawler; move crawler to U2 FSB on existing roadways.
- Perform intercask transfer of MPC from load transfer cask to long-term storage container, using new U2 FSB gantry crane.
- Load long-term storage container onto transport crawler.
- Move loaded crawler to ISFSI on existing roadways and off-load long-term storage container onto concrete pad of ISFSI.
- Implement all activities described above in the order given in the attached schedule to place the loaded long-term storage containers at the IPEC ISFSI.

4.7 Miscellaneous Activities -- **Unit 1 Project Team Responsibility**

Task I – Install Portable Demineralizer for SFP
- Design installation for portable demineralizer for SFP including selection of demineralizer.
- Review/approve demineralizer installation.
- Procure demineralizer and other components needed for installation.
- Receive/inspect demineralizer.
- Prepare mod package for installation of demineralizer.
- Review/approve mod package.
- Prepare work order for installation of demineralizer.
- Review/approve work order.
- Implement work order for installation of demineralizer.

Task II – Install Backup Level Indicator Monitoring System



- Design backup monitoring system including equipment selection.
- Review/approve monitoring system design.
- Procure monitoring system components.
- Receive/inspect monitoring system components.
- Prepare mod package for installation of backup monitoring system.
- Review/approve mod package.
- Prepare work order for installation of backup monitoring system.
- Review/approve work order.
- Implement work order for installation of backup monitoring system.

Task III – Evaluation and Possible Modification of North Pool Surfaces

- Inspect the walls of the three north pools (Failed Fuel Pool, Disassembly Pool, Cask Load Pool).
- Based on inspection results, identify as needed coatings to eliminate leakage during flood-up of pools prior to spent fuel transfer from SFP.
- Procure/install coatings as needed.

Task IV – Flood up and Remove North Gate

- Upon completion of Task III actions, flood up the three north pools to required level.
- Remove north gate separating SFP with Disassembly Pool.

5.0 Cost

A table of costs is provided in Attachment D.

6.0 Schedule

Project schedule is provided in Attachment E.

7.0 References

1. "Project Management," Procedure No. ENN-DC-114 Rev. 3, ENN Nuclear Management Manual, Entergy.

2. "Engineering Work Management," Procedure No. ENN-DC-183 Rev. 1, ENN Nuclear Management Manual, Entergy.

3. "Control of Heavy Loads at Nuclear Power Plants," NUREG-0612, USNRC, 1980.

4. "Single-Failure-Proof Cranes for Nuclear Power Plants," NUREG-0554, USNRC, 1979.

5. "Changes, Tests and Experiments," Section 50.59 of Part 50 (Domestic Licensing of Production and Utilization Facilities), Title 10 (NRC Regulations) of the Code of Federal Regulations.

6. "Conditions of General License Issued Under §72.210," Section 72.212 of Part 72 (Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste), Title 10 (NRC Regulations) of the Code of Federal Regulations.

7. "Changes, Tests and Experiments," Section 72.48 of Part 72 (Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste), Title 10 (NRC Regulations) of the Code of Federal Regulations.

8. "Storage and Transport of Damaged Spent Nuclear Fuel," ANSI N14.33-2005.

9. "Damaged Fuel," ISG-1, Rev. 1, Spent Fuel Project Office, Interim Staff Guidance, NRC.

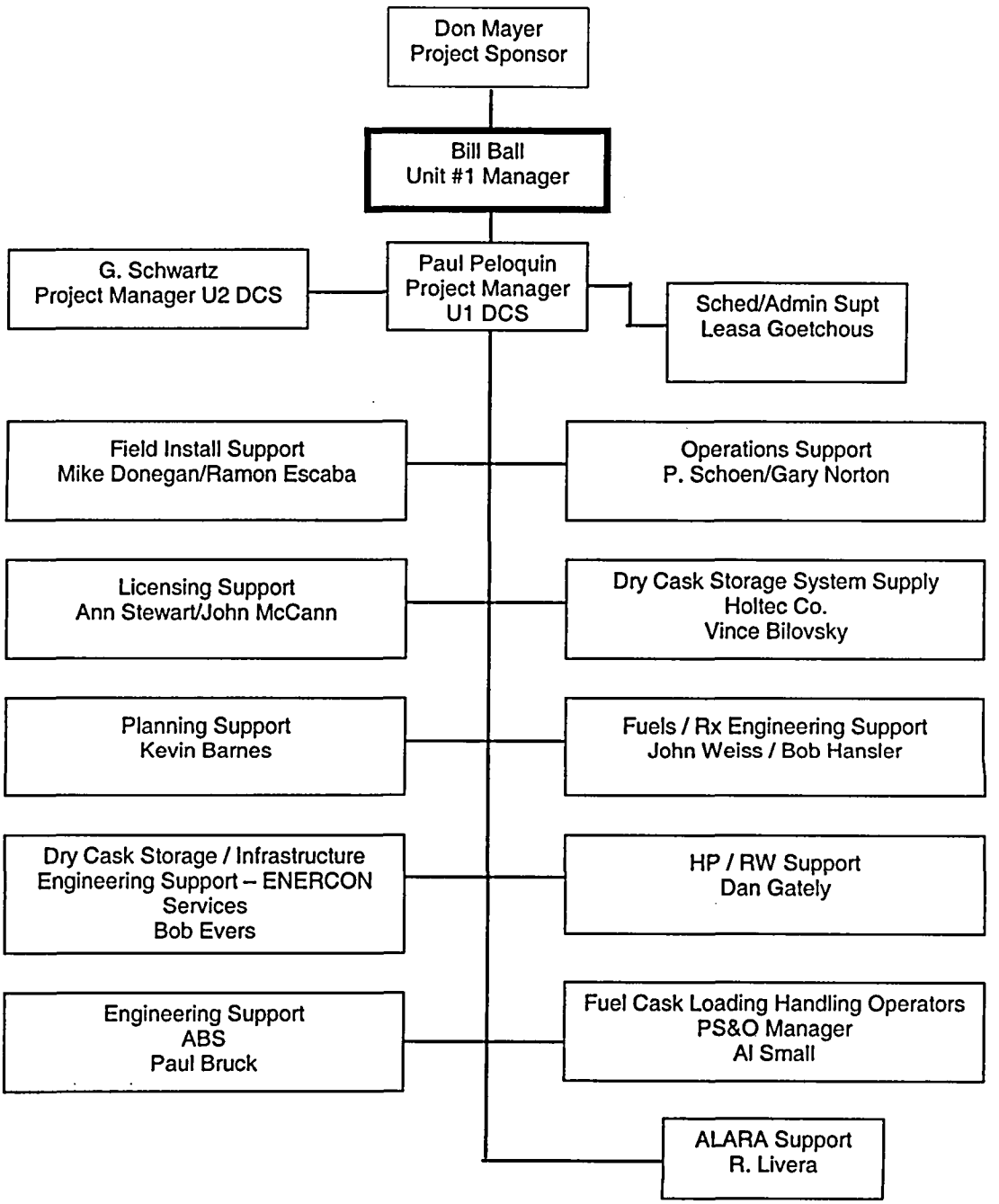
10. Project Plan, IPEC Spent Fuel Dry Cask Storage, Project #5C0044 (Unit 2 FSB mods and site ISFSI pad) and Project #6C0294 (Unit 3 FSB mods).

11. "Cladding Considerations for the Transportation and Storage of Spent Fuel," ISG-11, Rev. 3, Spent Fuel Project Office, Interim Staff Guidance, NRC.

Entergy Nuclear Northeast
Removal, Relocation and Storage of Spent Fuel
from the IPEC Unit 1 Spent Fuel Pool
Project Plan

ATTACHMENT A
3/29/06

Project Organization Chart



Entergy Nuclear Northeast
Removal, Relocation and Storage of Spent Fuel
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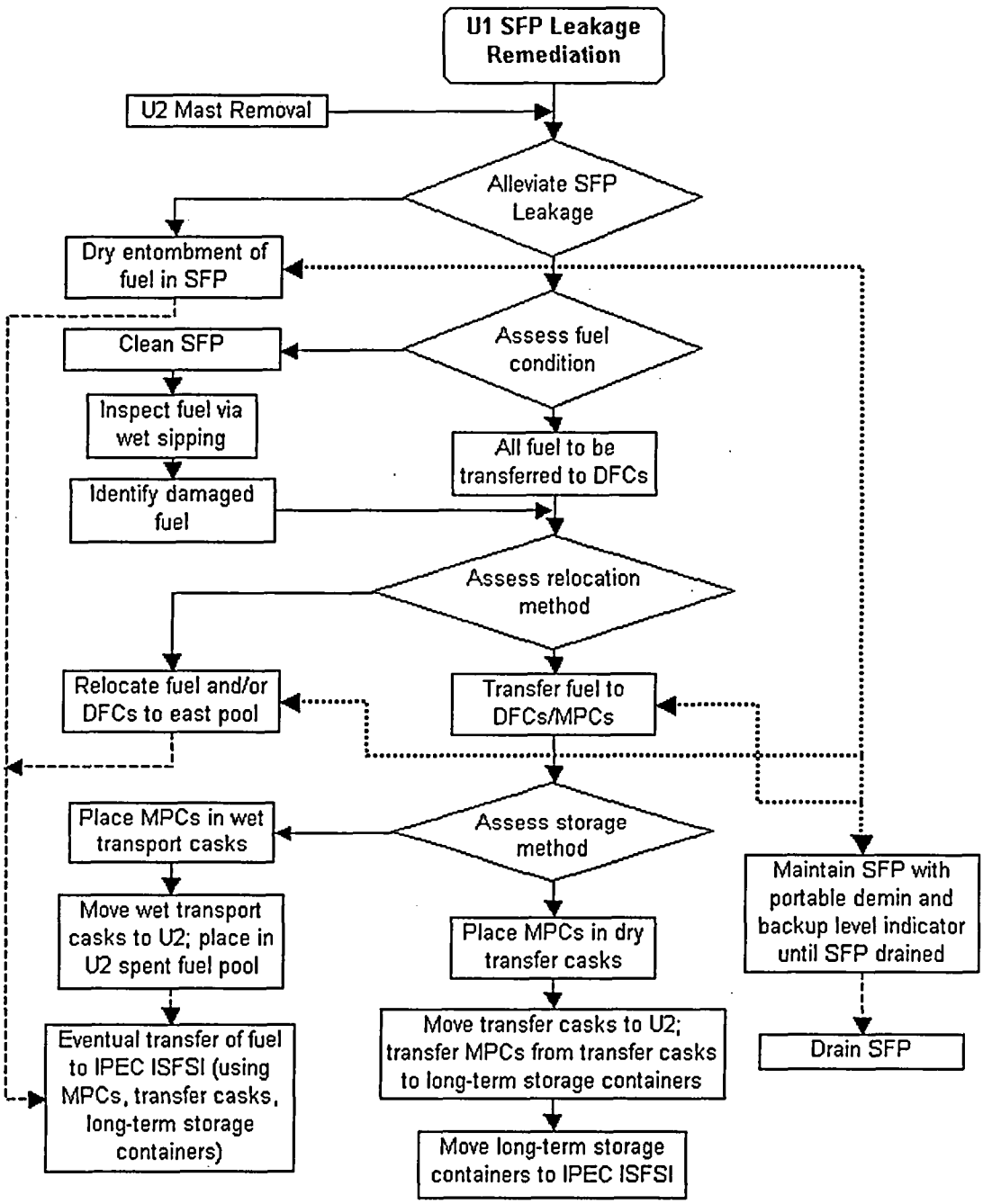
Project Plan



Entergy Nuclear Northeast
Removal, Relocation and Storage of Spent Fuel
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Project Plan

ATTACHMENT C
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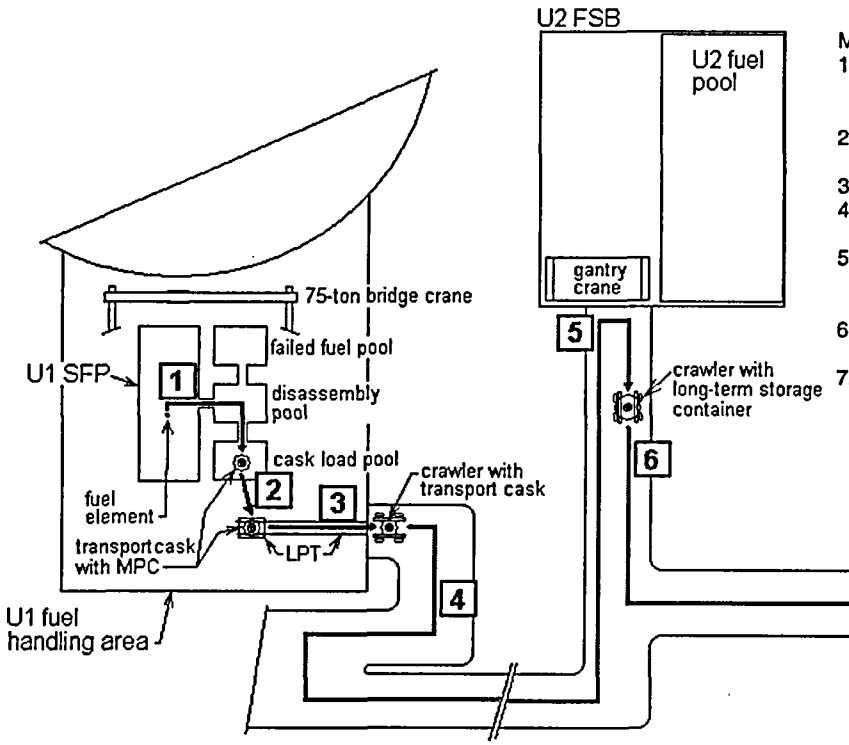
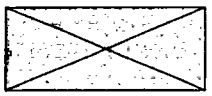


Major activities along transfer path:

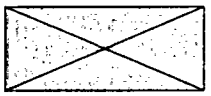
1. Transfer fuel element from SFP to DFC/MPC/transfer cask in cask load pool using 75-ton overhead crane.
2. Drain, dry and seal weld transfer cask. Move transfer cask to LPT using 75-ton overhead crane.
3. Move transfer cask to transport crawler using LPT.
4. Move transfer cask to U2 FSB using transport crawler.
5. Transfer MPC from transfer cask to long-term storage container using U2 gantry crane for intercask transfer (stack-up).
6. Move loaded long-term storage container to ISFSI using transport crawler.
7. Off-load long-term storage container onto concrete pad.



Entergy Nuclear Northeast
Removal, Relocation and Storage of Spent Fuel
from the IPEC Unit 1 Spent Fuel Pool
Project Plan

COST ESTIMATES

Category		
1) DFC's – design, license, fabricate		
2} Hi-Trac/HDWE — design, license, procedure — fabrication		
3) MPC-32 Canisters (5)		
4) Hi-Storm Overpacks (5)		
5) Facility Evaluations/Mods — design, license — implementation		
6) LPT System – design/fabrication/installation		
7) Consequence analysis program		
8) Pool cleanout		
9) Mockup simulator		
10) Training and procedures		
11) Fuel loading/handling (40K wk x 4 wks/cask x 5 casks)		
12) Install new monitoring wells		
Total		



Entergy Nuclear Northeast
Removal, Relocation and Storage of Spent Fuel
from the IPEC Unit 1 Spent Fuel Pool
Project Plan

SCHEDULE
(effective 3/29/06)

Unit 1 Dry Cask Storage & Pool Drain Down Level II Schedule

ID	Task Name	Duration	Start	Finish
14	Holtech Licensing Ammendment (Peloquin)	387 days	Tue 11/22/05	Wed 5/16/07
20	Design & Fabrication	434 days	Tue 11/15/05	Fri 7/13/07
21	DFC & Fabrication (Peloquin)	412 days	Tue 11/15/05	Wed 6/13/07
28	MPC, HI Trac & ancill. Eq. Fab (Peloquin)	429 days	Tue 11/22/05	Fri 7/13/07
44	HI Storm fabrication (Peloquin)	225 days	Mon 6/5/06	Fri 4/13/07
48	Overhead Crane Refurbishment & License ammendment (H	459 days	Tue 11/22/05	Fri 8/24/07
93	Consequence Analysis (Peloquin)	384 days	Tue 11/22/05	Fri 5/11/07
104	HAUL PATH EVALUATIONS (Henries)	172 days	Fri 1/27/06	Mon 9/25/06
137	West Pool Gate Modifications (Henries)	181 days	Fri 1/27/06	Fri 10/6/06
162	CONCRETE FLOOR EL 70'-6 CALCULATION (Henries)	135 days	Mon 2/20/06	Fri 8/25/06
169	Environmental & Rad evaluation (English)	120 days	Fri 9/8/06	Thu 2/22/07
172	LPT System Design, Fabrication & Mod (Henries)	339 days	Mon 2/20/06	Thu 6/7/07
216	72.212 Evaluation Report (Stewart)	351 days	Thu 3/16/06	Thu 7/19/07
226	Cask Load Pool cleanout, eval & Mod (Hennies)	291 days	Thu 1/5/06	Thu 2/15/07
236	North Pool Eval & Coating (Donegan)	210 days	Mon 6/19/06	Fri 4/6/07
247	North Pool Clean out (Donegan)	165 days	Mon 3/27/06	Fri 11/10/06
255	E-Plan Impact evaluation (English)	170 days	Mon 6/19/06	Fri 2/9/07
260	Fire Protection Plan Impact evaluation (English)	170 days	Mon 6/19/06	Fri 2/9/07
265	Security Plan Impact evaluation (English)	170 days	Mon 6/19/06	Fri 2/9/07
270	QA plan Impact evaluation (McCann)	140 days	Mon 6/19/06	Fri 12/29/06
274	Sequence and Handling Plan (Miller)	80 days	Mon 3/6/06	Fri 6/23/06
279	Training & Procedures (PS&O)	320 days	Mon 6/26/06	Fri 9/14/07
288	Dry Runs (PS&O)	80 days	Mon 6/25/07	Fri 10/12/07
293	Final Preps and Readiness Checks (Peloquin)	20 days	Thu 9/20/07	Wed 10/17/07
297	Load, Process and Transfer Fuel to ISFSI (PS&O)	50 days	Thu 10/18/07	Wed 12/26/07
303	Contamination Control (Donegan)	115 days	Mon 1/15/07	Fri 6/22/07
312	Restore SF building Operating floor (Donegan)	287 days	Mon 6/26/06	Tue 7/31/07
320	Receipt & Fit-up (Peloquin)	154 days	Tue 1/2/07	Fri 8/3/07
325	Pool Drain Down	120 days	Thu 12/27/07	Wed 6/11/08