



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

JULY 2 1982

ORIT  
Schwencer  
Stefano

Docket Nos. 50-440/441

MEMORANDUM FOR: Darrell G. Eisenhut, Director  
Division of Licensing

FROM: Robert L. Tedesco, Assistant Director  
for Licensing  
Division of Licensing

SUBJECT: REQUEST TO DELAY ISSUANCE OF PERRY FES

The current Bevill Schedule requires issue of the Perry FES on July 5, 1982. Your approval is requested to delay issue of the FES to August 13, 1982, for the reasons stated below.

1. Several comments on the DES (issued March 1982) were received late delaying receipt of staff reviewer inputs to the current schedule.
2. There is need to consider and address psychological stress in the NEPA analysis, fuel cycle costs and cost benefits derived from Perry in the FES. Commission guidance on how to treat these issues, in pending licensing applications, which are potential environmental contentions for Perry, is expected in July 1982. OELD has suggested that we consider deferring FES issue until this guidance is formulated.
3. Delay in issuing the FES will not impact on the ASLB Hearings, scheduled to begin in November 1982. Of the seven (7) contention issues admitted by the Board to date for Perry, only one has environmental implications. This issue concerns the potential biofouling of safety systems by asiatic clams. This issue is resolved to the satisfaction of the staff by the Clam Surveillance Program planned and committed to by the applicant which is discussed in Section 9.2.1 of the SER. Similar discussion will be included in the FES.

Robert L. Tedesco, Assistant Director  
for Licensing  
Division of Licensing

APPROVED:

Darrell G. Eisenhut (date)

8207140358

XA

BWC	97.4	38.96
L.P	88.4	13.26
S.P	62.0	6.20
Tray	98.0	4.90
Conduit	74.1	7.41
Cable	36.2	3.62
Trench	32.9	<u>1.65</u>

76%

Complete. NRC ESTIMATE BASED  
ON OTHER NUMBERS.

77%

CEI ESTIMATES



SERVICE WATER PUMP HOUSE

ELECTRIC SERVICE WATER PUMP HOUSE

\* 4

\* 3

HEATER BAY 1

AUX. BOILER BLDG.

WATER TREATING BLDG.

TURBINE ROOM 1

CIRC. WTR PH-1

COOLING TOWER 1

OFF GAS BLDG. 1

TURBINE POWER COMPLEX 1

STEAM TUNNEL 1

\* 2

AUXILIARY BLDG. 1

RADWASTE BLDG.

REACTOR BLDG. 1

\* 1

DIESEL GEN.

CONTROL COMPLEX

INTERMEDIATE BLDG.

\* 5

SERVICE BLDG.

REACTOR BLDG. 2

AUXILIARY BLDG. 2

OFF GAS BLDG.

TURBINE POWER COMPLEX

STEAM TUNNEL

TURBINE ROOM 2

CIRC. WTR PH-2

COOLING TOWER 2

HEATER BAY 2

\* = OBSERVATION STATION

\* 6

The Cleveland Electric Illuminating Co  
Perry Nuclear Power Plant Units 1 & 2

PLANT LAYOUT

PERRY NUCLEAR POWER PLANT'S  
 UNIT #1 - BULK QUANTITY REVIEW  
*f Common*

<u>ITEM</u>	<u>REPORTED AS OF</u> <u>MARCH '79</u>		<u>TO BE REPORTED</u> <u>AS OF OCT. 31, '79</u>		
	<u>TO DATE</u>	<u>EAC</u>	<u>TO DATE</u>	<u>EAC</u>	
CONCRETE (yds)	184,118	237,000	213,000	244,000	87.3
LARGE PIPE (lf)	77,318	276,700	166,768	279,870	59.6%
SMALL PIPE (lf)	3,961	175,300	4,824	179,470	2.7
CABLE (lf)	0	6,264,000	32,000	6,243,000	0.5
CABLE TRAY (lf)	13,516	87,200	34,499	87,500	39.4
CONDUIT (lf)	450	692,000	7,000	475,000	1.5
TERMINATIONS (EA)	0	221,000	5,000	211,000	2.4

Notes:

Cable Tray and Conduit = 73% of project total  
 Cable = 66% of project total

# CASE LOAD FORECAST MEETING

## ATTENDANCE.

NAME	ORG.	title
Bill Coleman	NL&F	Senior LICENSING Engineer
Barry Barkley	NDS	Gen. Supv Engr
Larry Bede	NL&F	Gen Supv Engr
Ronald L. Janell	NQA	Manager, Nuclear Quality Assurance
J. M. LASTOVKA	NTS	GEN. SUPV. ENG.
R. A. Gilbert	NRC	Project Manager
W. H. LOVEACE	NRC	ENGINEER
E. R. SCHWEIBINZ	USNRC	REACTOR INSPECTOR
M. J. TRAS	PPSD	MANAGER
G. H. LOCKWOOD	PPSD	GEN. SUPV. CONST. BUYING
J. A. KLINE	NED	GEN. SUPV. NUC. CONST
MU. M. EOBMAN	NED	MBK
F. L. VERMIREN	NQA	General Supervising Engineer

## CASELOAD FORECAST PANEL SITE VISIT

### NRC AGENDA ITEM NUMBER 2

Detailed review and current status of design and engineering effort (by major discipline) including any potential problems that may arise from necessary Rework.

### Engineering Status

1. Engineering General - Engineering Progress as of September 1st is as follows: Basic plant design is 92%. All new engineering tasks are identified and scheduled as New Work and Rework. Our last engineering schedule revision in late 1980 defined the basic design activities which have been static. New activities are added to New Work and Rework as they are defined. Presently 52% of the identified New Work tasks are complete and 33% of the identified Rework tasks are complete. Total engineering progress is 90%. No engineering activities will heavily impact our scheduled fuel load date.
2. Structural - All Unit 1 and Common structural steel erection and concrete construction drawings for the main plant have been completed and issued. Remaining structural work affecting Unit 1 is limited to the Service Building, Guardhouse, and Emergency Operations Facility; plus evaluation of final new loads impact on the structures and accomodation of changes arising from the TMI and ATWS studies.
3. Mechanical - All but about a dozen Unit 1 and Common piping installation drawings have been completed and issued. Approximately 90% of the piping hanger drawings for Unit 1 and Common have been issued. In this discipline, remaining work includes the finalization of the pipe break, whip, and jet studies, completion of the remaining hanger designs, design of the ATWS system, ~~and evaluation of the affect of new loads on the pipe hanger designs.~~  
Engineering effort of pipe supports in the containment due to these topics is the most critical engineering effort that we are closely monitoring so that it does not impact construction. Agenda Item No. 5 will discuss pipe supports in greater detail.
4. I&C - All Unit 1 and Common design instrument and control drawings have been released for installation. Current effort is limited to cleanup items: ATWS and NUREG 0696 (ERIS) design, and the IEEE Qualification Program. Johnson Engineering - Approximately 50% of the Johnson Controls Installation/Fabrication drawings for Unit 1 and Common are complete and approved for construction.
5. Electrical - Approximately 95% of Unit 1 and Common electrical drawings have been completed and released for installation. Current effort consists of system close-out activities, ATWS and ERIS design, modifications arising from TMI studies.
6. Site Design - GAI is designing safety-related small bore pipe supports and Reactor Building instrument and control line supports on site. Presently, the small bore safety-related effort for Unit 1 and Common is 47% complete while the I&C support effort is just getting underway. We anticipate having both efforts complete by the Fall of 1982. Pullman Power Products is designing non-safety small bore pipe supports and is 18% complete on Unit 1 and Common.

New Work and Rework Engineering

1. The Technical Support Center (TSC) and the Emergency Operations Facility (EOF) are two building additions to the Plant which are spin-offs of the TMI incident. The civil/structural engineering effort on these facilities is summarized below.
  - a) TSC - Drawings were prepared in November of 1980 to define excavation limits and the additional foundation pile work for the L-shaped basement addition to the Service Building. The design construction effort is complete and concrete work for the TSC is essentially complete. Plumbing, electrical and lighting drawings have been issued to the installation contractors and this work is presently underway.
  - b) EOF- The Site selection has been made and the preliminary specification for this facility has been developed. The procurement specification and drawings will be ready for bid by November 1, 1981.
2. ERIS (NUREG 0696) - CEI has contracted with General Electric Nuclear Power Systems Division and we have started an ERIS Plant Assessment Survey on September 22, 1981. This approach was initiated to develop the information needed for ERIS early and the full engineering. It is the intent of the survey to address the guidelines provided in NUREG 0696 as well as to incorporate important consideration for diverse sources elsewhere in the nuclear industry. The implementation schedule goal is as follows:

Application Engineering Complete	11/81
Complete ERIS hardware and software options/ contract agreement	12/81
Functional diagrams, equipment locations, modifications, schematic diagrams to Perry Architect/Engineer	2/82
Deliver hardware and software to Perry	11/82
Complete testing and put in service the basic system	4/83

3. TMI Requirements Program Summary - We have addressed the TMI Requirements in the Perry FSAR Table 1A-1. The status of our implementation is given in the right hand side of the table and will be discussed later by Licensing. We are actively doing evaluation and design work with GE, Gilbert Associates, and the BWR Owner Group on these items, and making the necessary procedural changes. In addition, we are doing the modification work or have completed a significant number of TMI items. The TMI requirements and their status can be categorized as follows:

<u>No. of Items</u>	<u>Status</u>
4	Completed, no further action required
6	Modification work in process
7	Doing evaluation or design work
12	BWR Owners Group doing evaluation
23	Program or Procedure changes being written

4. I. E. Bulletin 79-14 - We have identified and are proceeding with a team of GAI site personnel to address the requirements of I.E. Bulletin 79-14. Procedures have developed and contractor as-builts are being reviewed in preparation for taking field measurements. Our assumption is that the survey will necessitate 25% reanalysis and 10% redesign. As we obtain results from the measurement effort, we will be reassessing this estimate and applying resources to the reanalysis and redesign as appropriate. We are scheduling the engineering and construction effort for this redesign so it does not impact our fuel load date.
  
5. ATWS Program Summary - The Perry Project position on ATWS is that we are awaiting the results of rulemaking. However, we are evaluating Alternative 3A of NUREG-0460. If rulemaking requires this fix we will be in a position to install it before fuel load.



## NRC AGENDA ITEM NUMBER 5

Detailed review and current status of all large and small bore pipe hangers, restraints, snubbers, etc., including design, rework, procurement, fabrication, delivery and installation.

The status of piping supports for Perry Unit 1 and Common facilities as of September 1, 1981, was as follows:

	<u>Large Bore</u>	<u>Small Bore</u>
Required	12,858	20,600
Designed	12,396 (96%)	4,700 (23%)
Delivered	10,885 (85%)	N/A
Installed	8,700 (68%)	3,390 (16%)

The above totals include all supports - safety and non/safety class restraints, deadweights and anchors. They do not include any new designs resulting from reanalysis required by "new loads", preoperational vibration, or differences between as-built and as-designed installations. These supports fall under the classification of rework and will be discussed later.

Large Bore

Included in the totals above are 4423 large bore safety class supports. The total that remains to be designed are 462. Of the 462, 420 are safety class and 42 are non-safety deadweights. Of the 420 safety class supports, 300 are restraints, nearly 200 of which are snubbers. Overall 75% of snubber designs are complete.

Fifty five percent (55%) of the required safety class supports are delivered. The vast majority of these are other than snubbers. Only 16% of the required snubbers have been delivered. Snubber requirements, which number about 800, have been anticipated by bulk orders. Snubbers units (minus wall and pipe attachments) have been ordered bulk for well over a year. Presently, 400 of these units have been fabricated and await assembly with wall and pipe attachment hardware.

To date, just over 700 safety class supports have been installed or about 16%. No snubbers have been installed. It should be noted that it is the Project's intention to install snubbers at the latest practical time to minimize damage.

Small Bore

The totals for small bore supports are only estimates because the non-safety portion is only approximately known at this time. Of the totals, just under 2412 are safety class. Of these, 1126 have been designed and nearly 400 (14%) have been installed. The "delivered" status is insignificant since these supports have fabricated on site from bulk supplies of standard component parts.

Rework

As previously stated, none of the totals include rework items. It is presently estimated that 200 new designs and about 500 revisions will result from reanalysis of "new loads". However, a significant portion of the revisions will consist only of updating load criteria and will not result in hardware changes. All new designs and revisions will be the restraint type with the vast majority of these being snubbers.

An additional quantity of supports will require design or revision for differences as-built and as-designed installation. At this point, an estimate of four hundred (400) supports affected appears conservative.

In addition to "new loads" items, new or revised support designs will be required for vibration detected during pre-operational testing. About 100 supports, are estimated.

These activities are already going into our cost predictions and when hardened up will be factored in the engineering and construction schedules and added to the construction manhours.

These pipe support efforts are a major project concern and will be given a heavy priority and emphasis so that the fuel load date will not be impacted.

# EQUIPMENT RECEIVED

#3

ITEM	RECEIVED	% TOTAL REQUIRED
VALVES	8,543	92%
INSTRUMENTATION	3,320	88%
MAJOR EQUIPMENT	104 ORDERS	96%
CABLE	4,315,300	90%
REBAR	23,100 TONS	100%
STRUCTURAL	9,017 TONS	98%
EMBEDMENTS	1,900 TONS	100%
SPOOLS (2 1/2" LARGER)	11,658	99%
HANGERS (INCLUDES RESTRAINTS)	10,885 $\frac{1973}{12858}$	85%

# FINAL DELIVERY DATES

ITEM	REMAINING	DELIVERY DATE
VALVES	780	9/82
INSTRUMENTATION	460	10/82
MAJOR EQUIPMENT	4 ORDERS 20 PIECES	6/82
CABLE	1,463,500'	7/82
REBAR	0	-
STRUCTURAL	180 TONS	2/82
EMBEDMENTS	0	-
SPOOLS	142	6/82
HANGERS (INCLUDES RESTRAINTS)	1,973	12/82

## PROBLEMS

1. KNOWN REQUIREMENTS

2. VENDOR PERFORMANCE

## ACTIVITIES

1. EXPEDITING

2. CONTRACT AMENDMENTS

3. ALTERNATE SUPPLIERS

NUCLEAR TEST SECTION

Detailed review and current status of preparation of preop and acceptance test procedures, integration of preop and acceptance test activities with construction schedule, system turnover schedule, preop and acceptance test schedule, current and proposed preop and acceptance tests program manpower.

- a. Total number of procedures required for fuel load. - 564<sup>A</sup>
- b. Number of draft procedures not started. - 29
- c. Number of draft procedures being written. - 8
- d. Number of procedures approved. - 335
- e. Number of procedures in review. - 42
- (f) Total number of preop and acceptance tests required for fuel load. - 191 *@ 8.5 cal/ro*
- g. Number of preop and acceptance tests completed. - 7
- h. Number of preop and acceptance tests currently in progress. - 1 *N168 system*
- i. Number of <sup>sub</sup>systems turned over to start-up. - 59 of 262

One Hundred Eighteen (118) people to date (50 CEI/68 consultants).

- *Review list items*
- *Acceptance turnover schedule*

*pre op test = 23 mos*  
*Based on ave of 8.5 hrs/cals*  
*As we get more work 3-82*  
*complete 2-84*



CASELOAD FORECAST PANEL SITE VISIT  
MEETING AGENDA

1. Overview of project construction schedule including progress and major milestones completed, current problems and any anticipated problem areas that may impact the current projected fuel load date.

2. Detailed review and current status of design and engineering effort (by major discipline) including any potential problems that may arise from necessary rework.

3. Detailed review and current status of procurement activities including valves, pipe, instruments, cable, major components, etc.

4. Actual and proposed craft work force (by major craft), craft availability, productivity, potential labor negotiations and problems.

5. Detailed review and current status of all large and small bore pipe hangers, restraints, snubbers, etc., including design, rework, procurement, fabrication, delivery and installation.

6. Detailed review of project schedule identifying critical path items, near critical items, amount of float for various activities, the current critical path to fuel loading, methods of implementation of corrective action for any activities with negative float, and provisions for contingencies. The estimated project percent complete as of ~~November 30, 1980.~~

7. Detailed review and current status of bulk quantities including current estimated quantities, quantities installed to date, quantities scheduled to date, current percent complete for each, actual versus forecast installation rates, and basis for figures.

✓ (a) Concrete (CY)

✓ (b) Process Pipe (LF)

- Large Bore Pipe (2 1/2" and larger)
- Small Bore Pipe (2" and smaller)

✓ (c) Yard Pipe (LF)

? (d) Large Bore Pipe Hangers, Restraints, Snubbers (ea)

10-31-80  
10-31-80



- (e) Small Bore Pipe Hangers, Restraints (ea)
- (f) Cable Tray (LF)
- (g) Total Conduit (LF)
- (h) Total Exposed Metal Conduit (LF)
- (i) Cable (LF)
  - Power
  - Control
  - Security
  - Instrumentation
  - Plant Lighting
- (j) Terminations (ea)
  - Power
  - Control
  - Security
  - Instrumentation
  - Plant Lighting
- (k) Electrical Circuits (ea)
  - Power
  - Control
  - Security
- (l) Instrumentation (ea)

8. Detailed review and current status of preparation of preop and acceptance test procedures, integration of preop and acceptance test activities with construction schedule, system turnover schedule, preop and acceptance tests schedule, current and proposed preop and acceptance tests program manpower.

- (a) Total number of procedures required for fuel load.
- (b) Number of draft procedures not started.
- (c) Number of draft procedures being written.
- (d) Number of procedures approved.
- (e) Number of procedures in review.
- (f) Total number of preop and acceptance tests required for fuel load.
- (g) Number of preop and acceptance tests completed.
- (h) Number of preop and acceptance tests currently in progress.
- (i) Number of systems turned over to start-up.

9. Detailed discussion of potential schedular influence due to changes attributed to NUREG-0737 and other recent licensing requirements.
10. Discussion of schedular impact, if any, regarding potential deficiencies reported in accordance with 10 CFR 50.55(e). 23 open items.
11. Financial commitments to complete the plant.
12. Overview of current construction management organization and activities.
13. Site tour and observation of construction activities.

*Impact Potentials*

- *leaking problem on caliche tray*
- *Bio-Shielded concrete - possible additional shielding*
- *piping (pump house)*