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

SEP 11 1980

MEMORANDUM FOR: Chairman Ahearne
Commissioner Gilinsky
Commissioner Hendrie
Commissioner Bradford

THRU: Executive Director for Operations Original signed by W. J. Dircks

FROM: Thomas E. Murley, Acting Director
Office of Nuclear Regulatory Research

SUBJECT: BIMONTHLY REPORT ON CONFIRMATORY TESTS FOR ELECTRICAL CONNECTORS AND REPLICATION TESTS FOR FIRE PROTECTION SYSTEMS

References:
1. CLI-80-21, dated May 27, 1980.
2. Memorandum from Robert J. Budnitz to Commission, dated July 15, 1980.
3. Memorandum from Samuel J. Chilk to William J. Dircks, dated August 5, 1980.

This bimonthly report is being sent to the Commission concerning the following two areas of our current research work:

1. LOCA confirmation tests for electrical connectors, and
2. Replication tests for fire protection systems.

LOCA Qualification of Electrical Connectors

As stated in our last report (Ref. 2), IE is attempting to obtain spare connectors from operating plants in accordance with the guidelines established by the Commission (Ref. 1). This has been, and continues to be, the pacing item for conducting the connector tests. At this time IE is in the process of obtaining a firm commitment from Duke Power. Once the connectors are made available, a test can be run within 1 month after agreement on a test plan is reached. The writing of a test plan will take about 1 month. Assuming that a firm commitment can be obtained for the use of plant connectors by January 1, 1981, and the connectors delivered by February 1981, the test can be conducted in March 1981. RES will try to accelerate this schedule, but we cannot control the delivery of the connectors.

Replication Testing of Fire Protection Systems

As stated in our last report, NRR has selected the Browns Ferry Reactor Building and the Brunswick Intake Structure Basement as candidates for replication testing of fire protection systems. This represents the second major change in plans since it was decided to undertake full-scale replication tests.

We have now completed the plant inspections for both plants, and we believe that the tests proposed by NRR can be carried out with some modifications. For the Browns Ferry tests, it has been decided to conduct a partial (phase I) test first, to be followed by a complete (phase II) test if necessary. The test configuration consists of four vertical cable trays and conduits leading to an extensive array of horizontal trays that start at at least 20 feet off the ground. The most expensive part of the test will be to reproduce the horizontal trays. Accordingly, we intend to conduct a phase I test of the vertical cable trays and conduits with barriers to simulate the horizontal trays. If propagation occurs up the vertical trays or conduits, or if temperatures at the location of the lowest horizontal trays approach cable ignition temperature, then the second test (phase II) will be conducted with the full mock-up. It is our feeling that the second test will not be needed, allowing us to save both time and money. Nevertheless, the revised schedule enclosed with this report shows the worse case situation requiring an additional test which would add about 4 months to the overall schedule.

In Ref. 3 the Commission requested that the schedule be reviewed and accelerated to the maximum practical extent. We have reviewed the schedule and will take the following actions to improve the schedule:

1. Accelerate procurement of test hardware,
2. Reduce the test construction time,
3. Reduce the time between completion of construction and start of replication testing, and
4. Reduce the replication testing period.

However, since the procurement of test hardware is the pacing item and since we still do not know the items that have to be procured, by manufacturer and model number, a revised shorter schedule cannot be substantiated at this time. We believe that the September 1981 date for completion of phase I testing can be improved, perhaps by as much as several months, but until we receive the test hardware details from the

utility and contact the suppliers we do not have a basis for changing the schedule. We expect to have firmer information on the test schedule in the November report.

/S/

Thomas E. Murley, Acting Director
Office of Nuclear Regulatory Research

Enclosures:
1. Schedule for Replication Testing of Browns Ferry Reactor Bldg.
2. Schedule for Replication Testing of Brunswick Intake Structure

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TRehm
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*SEE PREVIOUS YELLOW FOR CONCURRENCES.

OFFICE ▶	SRSR:RSB	WRSR:RSB	WRSR	GRSR	RSR:D	D:RES
SURNAME ▶	Feit:sh*	RDiSalvo*	Johnson/Tong*	LCShao*	TEMurley*	TEMurley*
DATE ▶	9/2/80	9/3/80	9/4/80	9/9/80	9/9/80	9/9/80

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	TEMurley, RES	WJDircks
	JLarkins	EDO-09430

Commissioners 2

Replication Testing of Fire Protection Systems

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Thomas E. Murley, Acting Director
Office of Nuclear Regulatory Research

Enclosures:
1. Schedule for Replication Testing of Browns Ferry Reactor Bldg.
2. Schedule for Replication Testing of Brunswick Intake Structure Basement

	NRR	NRR	RES	RES	RES
	HRDenton	VStello	OEBassett	JLarkins	
	9/ /80	9/3 /80	9/ /80	9/9/80	

OFFICE ▶	WRSR:BSB	WRSR:BSB	WRSR	GRSR	RSR	RES
SURNAME ▶	RFeit:sh	RDiSalvo	Johnson/Tong	LCShao	TEMurley	TEMurley
DATE ▶	9/2/80	9/3/80	9/4/80	9/6/80	9/ /80	9/ /80

NRC FORM 318 (6-77) ☆ U.S. GOVERNMENT PRINTING OFFICE 1977-237-025

Record Note:

Before concurring, H. D. Thornburg requested that pg. 1, LOCA Qualification ... the sentence, "As of this date, they do not have a firm commitment to obtain test connectors, although they have reached agreement with personnel from one utility.," be changed to read, "At this time IE is in the process of obtaining a firm commitment from Duke Power." The following sentence, "A letter has been sent from IE to the utility.," was deleted.

Before concurring, NRR asked that the following statements be included on pg. 2, Replication Testing of Fire Protection Systems,: "The test configuration consists of four vertical cable trays and conduits leading to an extensive array of horizontal trays that start at at least 20 feet off the ground. The most expensive part of the test will be to reproduce the horizontal trays. Accordingly, we intend to conduct a phase I test of the vertical cable trays and conduits with barriers to simulate the horizontal trays. If propagation occurs up the vertical trays or conduits, or if temperatures at the location of the lowest horizontal trays approach cable ignition temperature, then the second test (phase II) will be conducted with the full mock-up."

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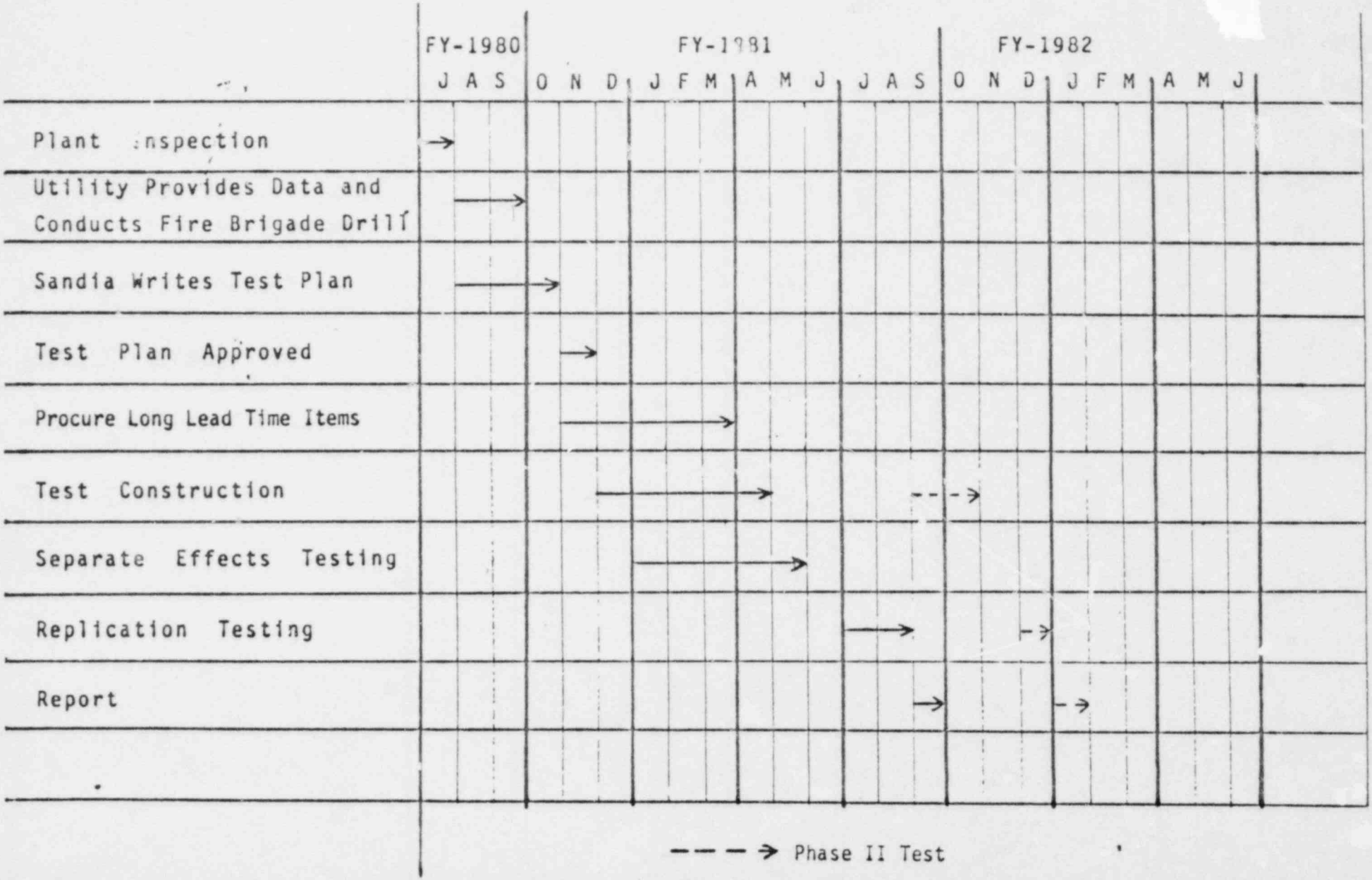
Schedule for

REPLICATION TESTING OF BROWNS FERRY REACTOR BUILDING

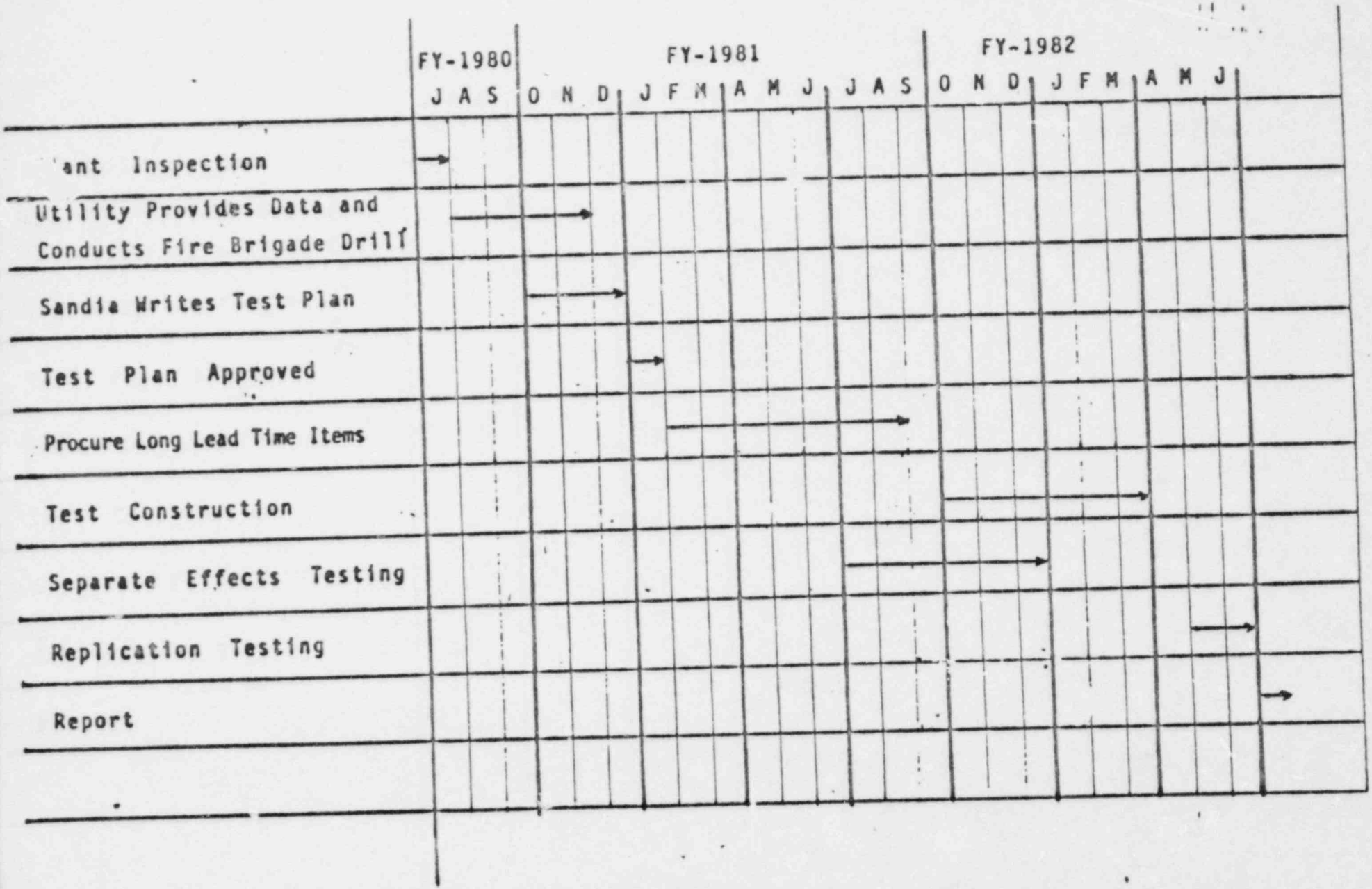
August 29, 1980



Schedule for

REPLICATION TESTING OF BRUNSWICK INTAKE STRUCTURE BASEMENT

August 29 , 1980



R. Jeit

Subject: Bi-monthly Report on Confirmatory Tests for Electrical Connectors and Replication Tests for Fire Protection Systems

Vince Noonan called and gave NRR's comments NRR has no comments on tests for electrical connectors but has comments on tests for fire ~~box~~ protection. (see attached)

One of the comments is to shorten the schedule and I told Vince that I have some problem with this comment. We have been too ~~op~~ conservative in the past and I would rather give Commissioners some schedule that we can meet (unless they don't like it)

Bob Ferguson was the reviewer of the news Please work with him

I am going to ACRS meeting this afternoon If you want to, we can chat to-morrow

Cl. T. Munley

Larry Shao

Dictated message given by V. Noonan - Taken by T. Milburn.

RE: BIMONTHLY REPORT ON CONFIRMATORY TESTS FOR ELECTRICAL CONNECTORS AND REPLICATION TESTS FOR FIRE PROTECTION SYSTEMS

In reference to page 2 under Replication Testing; Page 1 agreed.

Item 1

Describe the Phase I Test and Phase II Test. Explain the significance of each, and the relationship to the requirements and the proposed Appendix R. Explain the potential effect of a failure of the Phase I Test on the proposed rule.

Item 2

Explain why the second test may not be needed.

Item 3

Procurement of the test hardware is not pacing item.

3 months to prepare test plan, 6 months test construction, 5 months separate effects, and 3 months replication test.

Item 4

Schedule appears to be drawn out accessively. Many sequential items could be done in parallel. I believe both tests should be performed within the next 6 months.

Comments given by Bob Ferguson.