

August 26, 1988

ENCLOSURE 1

APPENDIX TO ALABAMA POWER COMPANY

FARLEY NUCLEAR PLANT

SALP BOARD REPORT NOS. 50-348/88-04; 50-364/88-04

(DATED JUNE 8, 1988)

8809200192 880907
PDR ADOCK 05000348
G PNU

August 26, 1988

I. Meeting Summary

A. A meeting was held on July 7, 1988, at the Farley site to discuss the SALP Board Report for the Farley facility.

B. Licensee Attendees

B. M. Guthrie, Executive Vice President
R. P. McDonald, Executive Vice President
W. G. Hairston, III, Senior Vice President - Nuclear Operations
J. D. Woodard, Vice President - Nuclear Generation
D. N. Morey, General Manager - Nuclear Plant
G. W. Shipman, Assistant General Plant Manager
J. W. McGowan, Manager, Safety Audit Engineering Review (SAER)
J. E. Garlington, Manager Engineering & Licensing
C. D. Nesbitt, Technical Manager
S. Fulmer, Supervisor SAER
R. B. Wiggins, Supervisor of Operator Training
J. K. Osterholtz, Manager - Operations
T. D. Arute, Shift Supervisor
R. L. Swift, Shift Supervisor

C. NRC Attendees

M. L. Ernst, Deputy Regional Administrator, Region II
A. F. Gibson, Director, Division of Reactor Safety
C. W. Hehl, Deputy Director, Division of Reactor Projects (DRP)
H. C. Dance, Chief, Reactor Projects Section 1B, DRP
E. G. Adensam, Project Director, Project Directorate II-1,
Office of Nuclear Reactor Regulation (NRR)
E. A. Reeves, Senior Project Manager, PD II-1, NRR
F. Herr, Deputy Director, OIA
N. Perkins, Auditor, OIA
W. H. Bradford, Senior Resident Inspector, Farley
W. H. Miller, Resident Inspector, Farley

II. Errata Sheet - Farley SALP

<u>Page</u>	<u>Line</u>	<u>Now Reads</u>	<u>Should Read</u>
11	8 received a violation for failurefor counting gaseous samples received an apparent violation for failure for counting gaseous samples. Subsequent to the issuance of the report the licensee has denied this violation. The NRC is reviewing this matter.

Basis for change: To give a more accurate description of the apparent violation which is being contested.

12		However, general corrosion carbor steel piping	However, hundreds of pounds of iron and (See corrected page)
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Basis for change: To properly address the facts in regard to steam generator and secondary side chemical treatment.

29	6	Category: 2	Category: 1
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Basis for change: To correct administrative error

		<u>Unit 1</u>	<u>Unit 2</u>	<u>Unit 1</u>	<u>Unit 2</u>
37	31	8		6	
37	32	7	3	6	2
37	36		1		0

Basis for change: To correct administrative error.

III. Licensee Comments

Licensee comments submitted in response to the SALP Board report are attached.

A confirmatory measurements inspection indicated that the licensee's counting results met the established NRC criterion for comparing counting results except that a negative bias was observed for a 14cc vial gas sample from the waste gas decay tank. This bias was attributed to sample preparation techniques because the bias was consistent for the four detectors for all isotopes. During an inspection in March 1988, the licensee received a violation for failure to make attenuation corrections for self absorption of gamma photons in a solid polymer standard which was used for calibrating the detectors for counting gaseous samples. Count room equipment was, in general, not state-of-the-art since it was procured in the early 1970s. However, the licensee has ordered new equipment and expects onsite delivery by the latter half of 1988.

A simulated liquid waste sample which contained H-3, Sr-89, Sr-90 and Fe-55 was provided to Alabama Power Company in May 1987 by the NRC. The licensee's results compared favorably with the NRC established criterion for comparing analytical results.

Liquid and gaseous radioactive effluents were within the Technical Specification limits and in compliance with 40 CFR 190 limits for radiation dose and radioactivity concentration in effluents. Fission and activation products in the gaseous effluents for 1987 were 35% lower than in 1986. Also, 1987 values for gaseous iodines and particulates were 75% lower than 1986 values. In general, gaseous effluents for Farley Unit 1 have been steadily declining since 1982 when Farley experienced problems with failed fuel. Radioactivity in the liquid effluents was 47% lower in 1987 as compared to 1986. Tritium in liquid effluents has remained essentially constant for the past three years. Gross alpha radioactivity in the liquid effluent was essentially background, $2E-5$ curies (Ci) per year. Annual effluent release summaries for 1985-1987 can be found in Section V.K.

The licensee reported a total of five non-routine releases (three liquid releases and two gaseous releases) during 1987. The gaseous releases occurred on Unit 2 and totalled $8.7 E-6$ Ci. These monitored, planned releases were caused by steam generator pressure pulse cleaning and steam generator helium leak testing. The non-routine liquid releases occurred on Unit 1, and a total of $8.65 E-5$ Ci were released. Two of the releases were due to a Refueling Water Storage Tank barrier penetration leak, and a third release was caused by a leak in the pumping equipment on the Reactor Makeup Water Storage Tank.

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Radiation doses to the maximally exposed offsite individual from liquid and gaseous effluents for 1987 were calculated to be 0.16 mRem to the whole body and 0.17 mRem to the critical organ. These values were consistent with previous annual dose estimates and below 40 CFR 190 limits.

The licensee continued to meet the criteria for good chemistry control established by the Steam Generator Owners Group and Westinghouse. However, general corrosion of carbon steel pipe throughout the secondary coolant system continued to result in hundreds of pounds of "sludge" being transported to the steam generators. Since this sludge had already initiated tube denting, the licensee continued to add boric acid as well as AVT control chemicals (ammonia and hydrazine) to the feedwater. This action, in turn, complicated the pH control needed to prevent general corrosion and pipe thinning. Consequently, the licensee planned to take two major steps to provide additional protection to the steam generators. During refueling outages (October 1987 and April 1988) the steam generators were cleaned by a pressure-pulse technique in an effort to remove solid iron-copper oxides from tube-tube sheet crevices and from the secondary sides of the steam generator tubes. Secondly, beginning in the next fuel cycles, morpholine will be substituted for ammonia for pH control in an effort to maintain higher pH conditions in the carbon steel piping.

Six violations were identified as follows:

- a. Severity Level III violation with three examples: (1) failure to adequately control access to a high radiation area, (2) failure to follow procedures, and (3) failure to adequately instruct individuals working in or frequenting a restricted area (348, 364/88-02).
- b. Severity Level IV violation for failure to assure that a recipient was authorized to receive radioactive material (348, 364/86-26).
- c. Severity Level IV violation for failure to comply with DOT regulations applicable to the transportation of radioactive material (348, 364/86-26).
- d. Severity Level IV violation for failure to follow the requirements of a radiation work permit (348, 364/87-28).
- e. Severity Level IV violation for failure to maintain records of survey when local instrumentation was out of service (364/87-29).

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The licensee continued to meet the criteria for good chemistry control established by the Steam Generator Owners Group and Westinghouse. However, hundreds of pounds of iron and copper oxide 'sludge' have been transported to the steam generators each fuel cycle as the result of general corrosion of carbon steel pipe throughout the secondary coolant system. Also, iron oxide deposit have been formed in the tube-tube support regions of the steam generators and indications of cracks have been observed in tubes, in Unit 2, at these elevations. During the last refueling outage the steam generators were subjected to a 'pressure-pulse' cleaning in an effort to remove these restriction. The licensee continued to add boric acid to the secondary coolant to prevent tube denting. This is consistent with the Owners Group guidelines. The licensee planned to augment AVT chemistry control by also adding morpholine in an effort to establish less acidic conditions throughout the secondary coolant system and thereby reduce erosion/corrosion.

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licensing activity. Thus, many operation's related questions from the NRC staff for information surveys or for information related to event occurrences are answered without an additional burden to the plant operations staff.

2. Conclusions

Category: 2

3. Recommendations

None

K. Training and Qualification Effectiveness

1. Analysis

During the assessment period, inspections were conducted by the resident and regional staffs. Inspections included two licensing examination site visits and one requalifications program evaluation. Assessment of training effectiveness were also made during the OPA noted previously.

The resident inspectors have had numerous occasions to inspect the training received by licensed and non-licensed personnel. The inspectors have observed simulator training and have reviewed the licensed operator requalification training material. The inspectors have observed and reviewed certain hands-on training at the training center and have reviewed instruction material for non-licensed personnel. The training center is state-of-the-art. The instructors are considered to be very proficient and well qualified in their positions. The training programs which are prescribed for each craft are a required and continuing training evolution. Each program is an in-depth coverage of all required work evolutions. Each training phase required craftsmen to successfully complete an examination on that portion of the training. The observed training has been professional, comprehensive and well received by personnel. Additionally, the ten program areas of training for plant personnel have been accredited by INPO.

The majority of the operators interviewed during the OPA indicated that both initial and requalification training were adequate and had improved substantially over the last two years. Interviews also indicated that the practice of operating crews attending requalification and simulator training as a crew enhanced the interface and teamwork within the crew. Simulator training was highly praised and operators indicated that plant specific events and emergency operating procedures (EOPs) were

licensing activity. Thus, many operation's related questions from the NRC staff for information surveys or for information related to event occurrences are answered without an additional burden to the plant operations staff.

2. Conclusions

Category: 1

3. Recommendations

None

K. Training and Qualification Effectiveness

1. Analysis

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detailed, well written and easy to understand. The narrative sections typically included specific details of the event such as valve identification numbers, model numbers, number of operable redundant systems, the date of completion of repairs to provide a good understanding of the event.

LERs presented the event information in an organized pattern with separating headings and specific information in each section that led to a clear understanding of the event information. Previous similar occurrences were properly referenced in the LERs as applicable.

The licensee updated some LERs during the assessment period. The updated LERs provided new information and the portion of the report that was revised was denoted by a vertical line in the right hand margin so the new information could easily be determined by the reader.

The licensee submitted several reports and updates on a voluntary basis during the assessment period. As stated on page 10 of NUREG-1022, licensees are encouraged to report any event that does not meet reporting criteria if the licensee believes that the event might be of safety significance, might be of generic interest or concern, or contains a lesson to be learned.

A review of LERs does not in general indicate any trend that the plants are subject to recurring problems. Recently the licensee has developed a program to trend personnel errors and repetitive equipment failures. The OIA team noted that all corrective actions taken were not listed in the LER and therefore, were not always correct. Licensee evaluations did not always show that the root cause was trended or pursued.

The distribution of the events analyzed by cause by the licensee were as follows:

<u>Cause</u>	<u>Unit 1</u>	<u>Unit 2</u>
Component Failure	8	5
Design	7	3
Construction, Fabrication, or Installation	6	2
Personnel		
- Operating Activity	5	1
- Maintenance Activity	4	4
- Test/Calibration Activity	3	4
- Other	6	-
Out of Calibration	-	-
Other	3	-
TOTAL	39	17
SITE TOTAL	56	

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The distribution of the events analyzed by cause by the licensee were as follows:

<u>Cause</u>	<u>Unit 1</u>	<u>Unit 2</u>
Component Failure	6	5
Design	6	2
Construction, Fabrication, or Installation	6	2
Personnel		
- Operating Activity	5	0
- Maintenance Activity	4	4
- Test/Calibration Activity	3	4
- Other	6	-
Out of Calibration	-	-
Other	3	-
TOTAL	39	17
SITE TOTAL	56	

ENCLOSURE 3

UNITED STATES
NUCLEAR REGULATORY
COMMISSION

SYSTEMATIC ASSESSMENT
OF
LICENSEE PERFORMANCE

(SALP)

ALABAMA
POWER
COMPANY

AUGUST 1, 1986 - MARCH 31, 1988

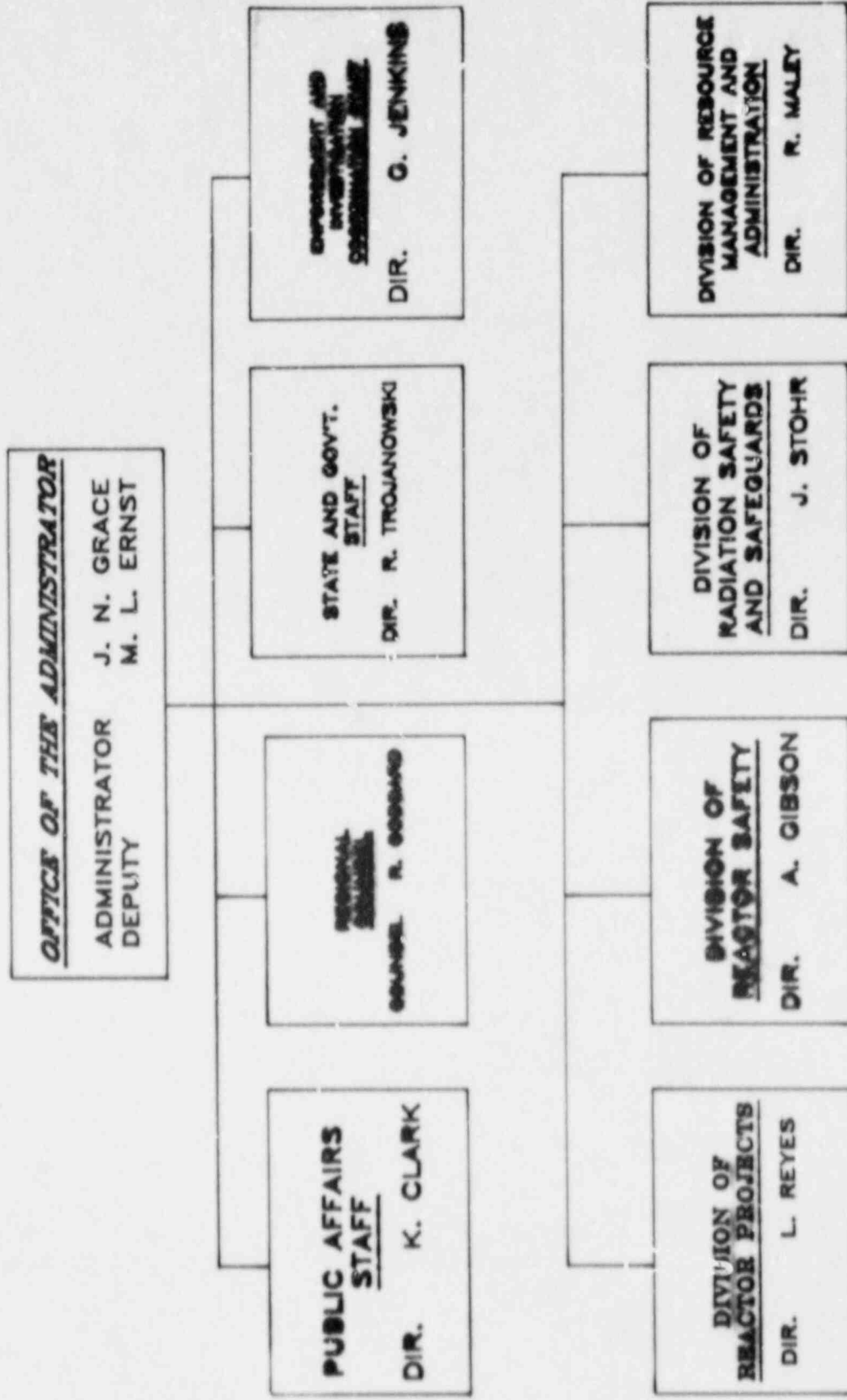
FARLEY - UNITS 1 & 2

JULY 7, 1988
DOTHAN, ALABAMA

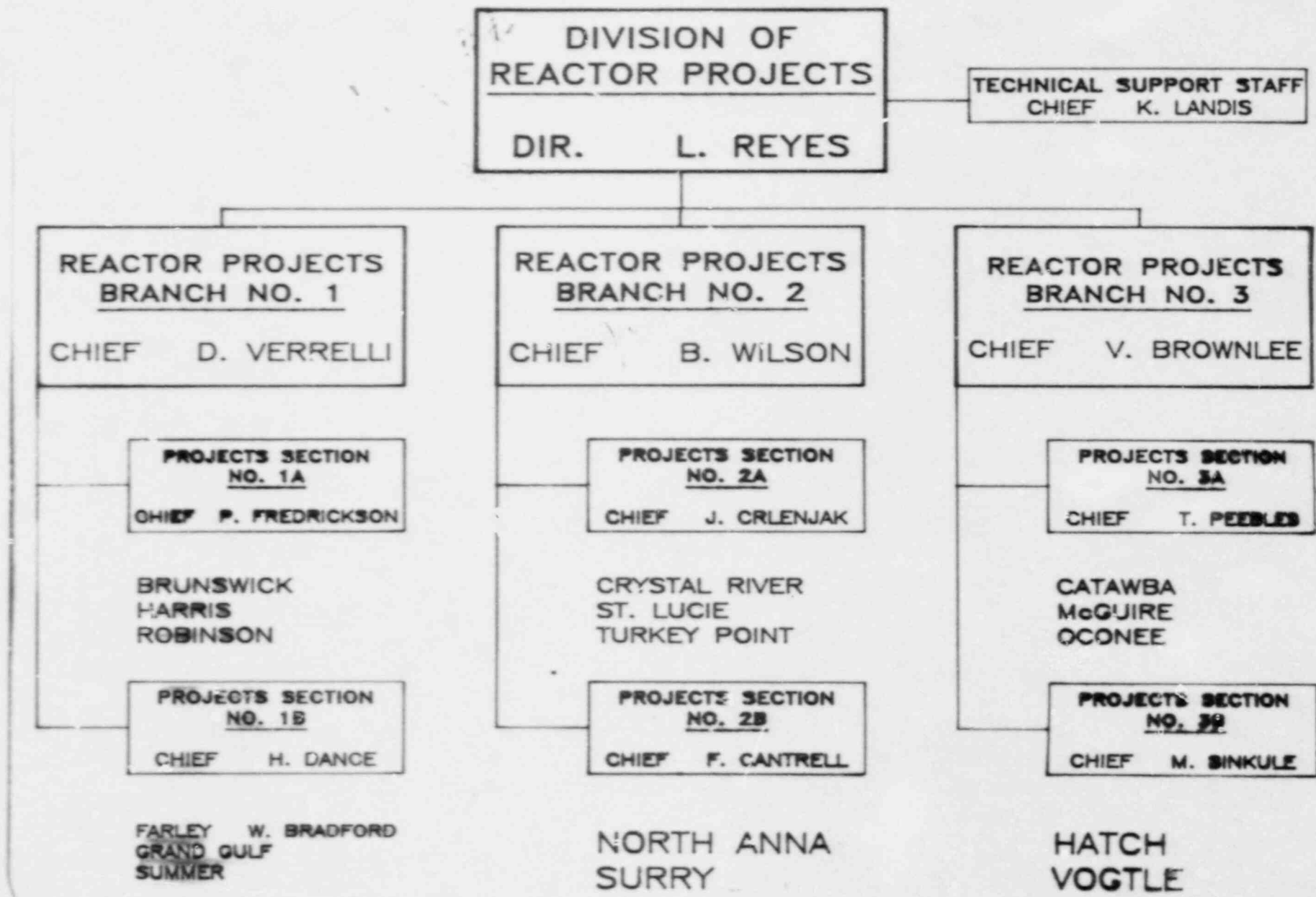
SALP PROGRAM OBJECTIVES

1. IMPROVE LICENSEE PERFORMANCE
2. PROVIDE A BASIS FOR ALLOCATION
OF NRC RESOURCES
3. IMPROVE NRC REGULATORY PROGRAM

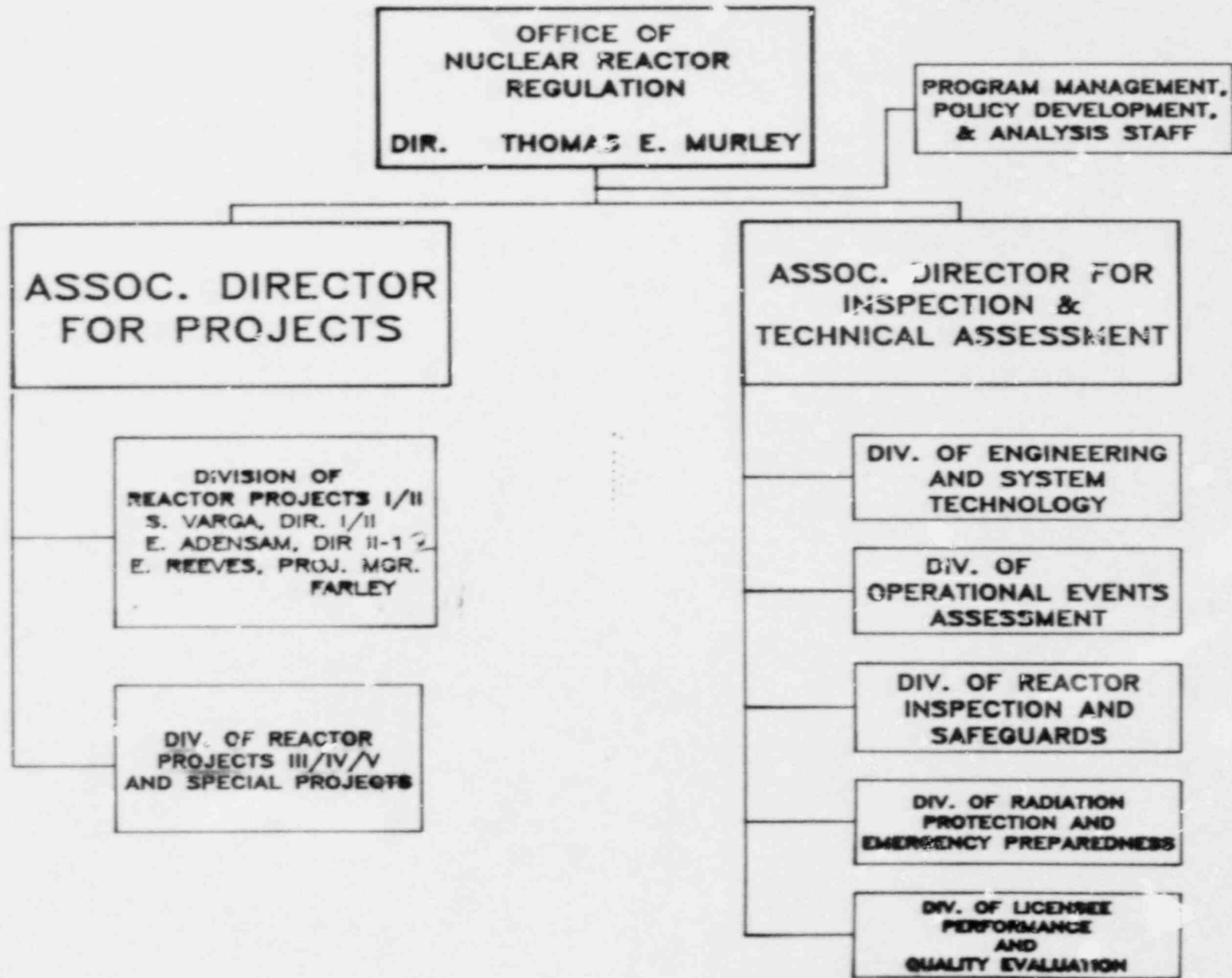
REGION II ORGANIZATION



DIVISION OF REACTOR PROJECTS ORGANIZATION



NRR ORGANIZATION



PERFORMANCE ANALYSIS AREAS FOR OPERATING REACTORS

1. PLANT OPERATIONS
2. RADIOLOGICAL CONTROLS
3. MAINTENANCE
4. SURVEILLANCE
5. FIRE PROTECTION
6. EMERGENCY PREPAREDNESS
7. SECURITY
8. OUTAGES
9. QUALITY PROGRAMS
10. LICENSING ACTIVITIES
11. TRAINING
12. ENGINEERING SUPPORT

AREA PERFORMANCE

CATEGORY 1

REDUCED NRC ATTENTION MAY BE APPROPRIATE.
LICENSEE MANAGEMENT ATTENTION AND INVOLVEMENT
ARE AGGRESSIVE AND ORIENTED TOWARD NUCLEAR
SAFETY; LICENSEE RESOURCES ARE AMPLE AND
EFFECTIVELY USED SUCH THAT A HIGH LEVEL OF
PERFORMANCE WITH RESPECT TO OPERATIONAL
SAFETY OR CONSTRUCTION IS BEING ACHIEVED.

AREA PERFORMANCE

CATEGORY 2

NRC ATTENTION SHOULD BE MAINTAINED AT NORMAL LEVELS. LICENSEE MANAGEMENT ATTENTION AND INVOLVEMENT ARE EVIDENT AND ARE CONCERNED WITH NUCLEAR SAFETY; LICENSEE RESOURCES ARE ADEQUATE AND ARE REASONABLY EFFECTIVE SUCH THAT SATISFACTORY PERFORMANCE WITH RESPECT TO OPERATIONAL SAFETY OR CONSTRUCTION IS BEING ACHIEVED.

AREA PERFORMANCE

CATEGORY 3

BOTH NRC AND LICENSEE ATTENTION SHOULD BE INCREASED. LICENSEE MANAGEMENT ATTENTION OR INVOLVEMENT IS ACCEPTABLE AND CONSIDERS NUCLEAR SAFETY, BUT WEAKNESSES ARE EVIDENT; LICENSEE RESOURCES APPEAR TO BE STRAINED OR NOT EFFECTIVELY USED, SUCH THAT A MINIMALLY SATISFACTORY PERFORMANCE WITH RESPECT TO OPERATIONAL SAFETY OR CONSTRUCTION IS BEING ACHIEVED.

EVALUATION CRITERIA

1. MANAGEMENT INVOLVEMENT IN ASSURING QUALITY
2. APPROACH TO RESOLUTION OF TECHNICAL ISSUES

FROM A SAFETY STANDPOINT

3. RESPONSIVENESS TO NRC INITIATIVES
4. ENFORCEMENT HISTORY
5. REPORTING AND ANALYSIS OF REPORTABLE EVENTS
6. STAFFING (INCLUDING MANAGEMENT)
7. TRAINING EFFECTIVENESS AND QUALIFICATION

VIOLATION SUMMARY

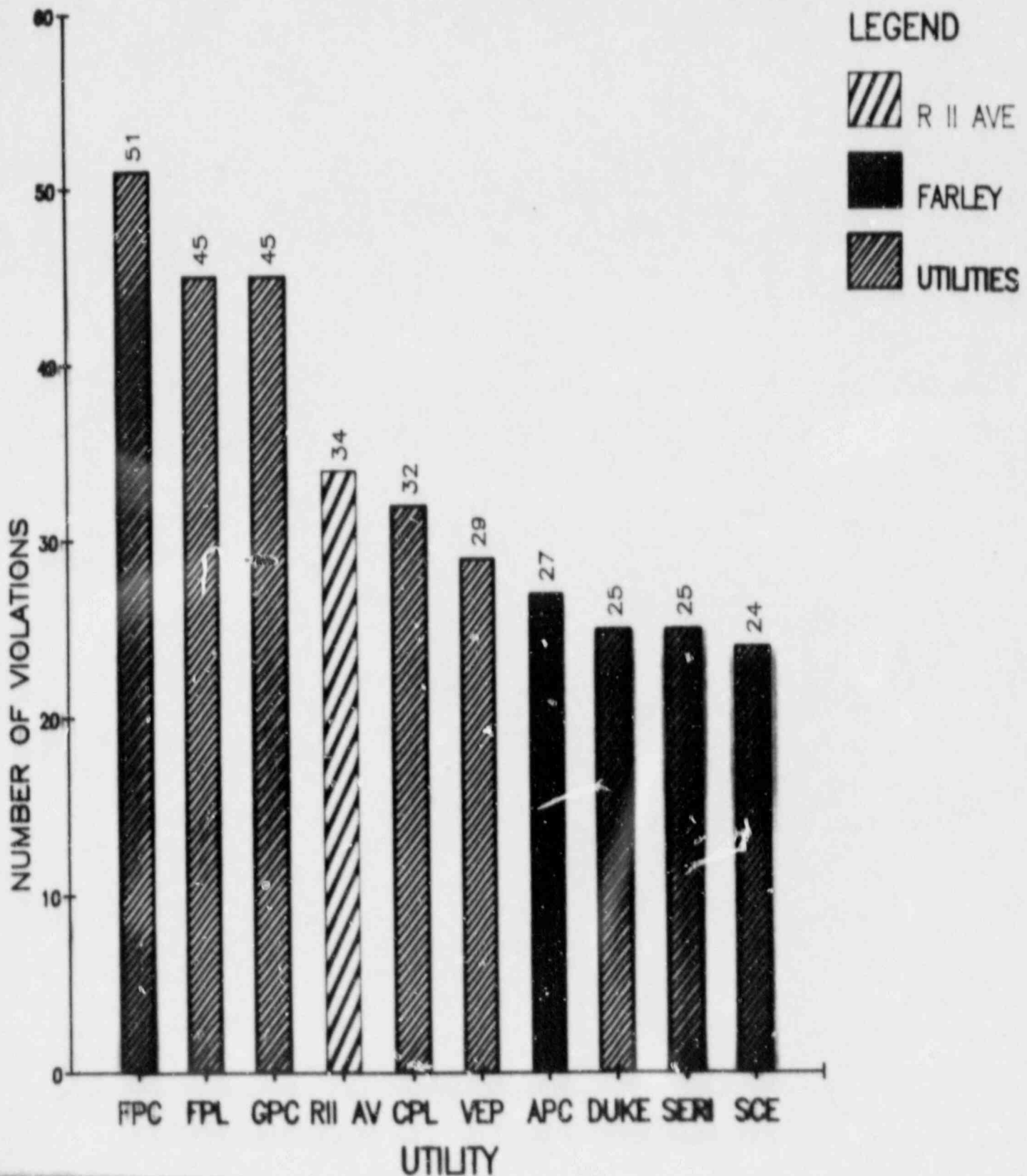
AUGUST 1, 1986 - MARCH 31, 1988

	I	II	III	IV	V	D
FARLEY 1	0	0	3	19#	4	1
FARLEY 2	0	0	3	17	5	1
REGION II AVE.	0	0	3	23	6	<1

Severity Level IV violation involving containment penetrations (86-25) was denied. NRC reviewing.

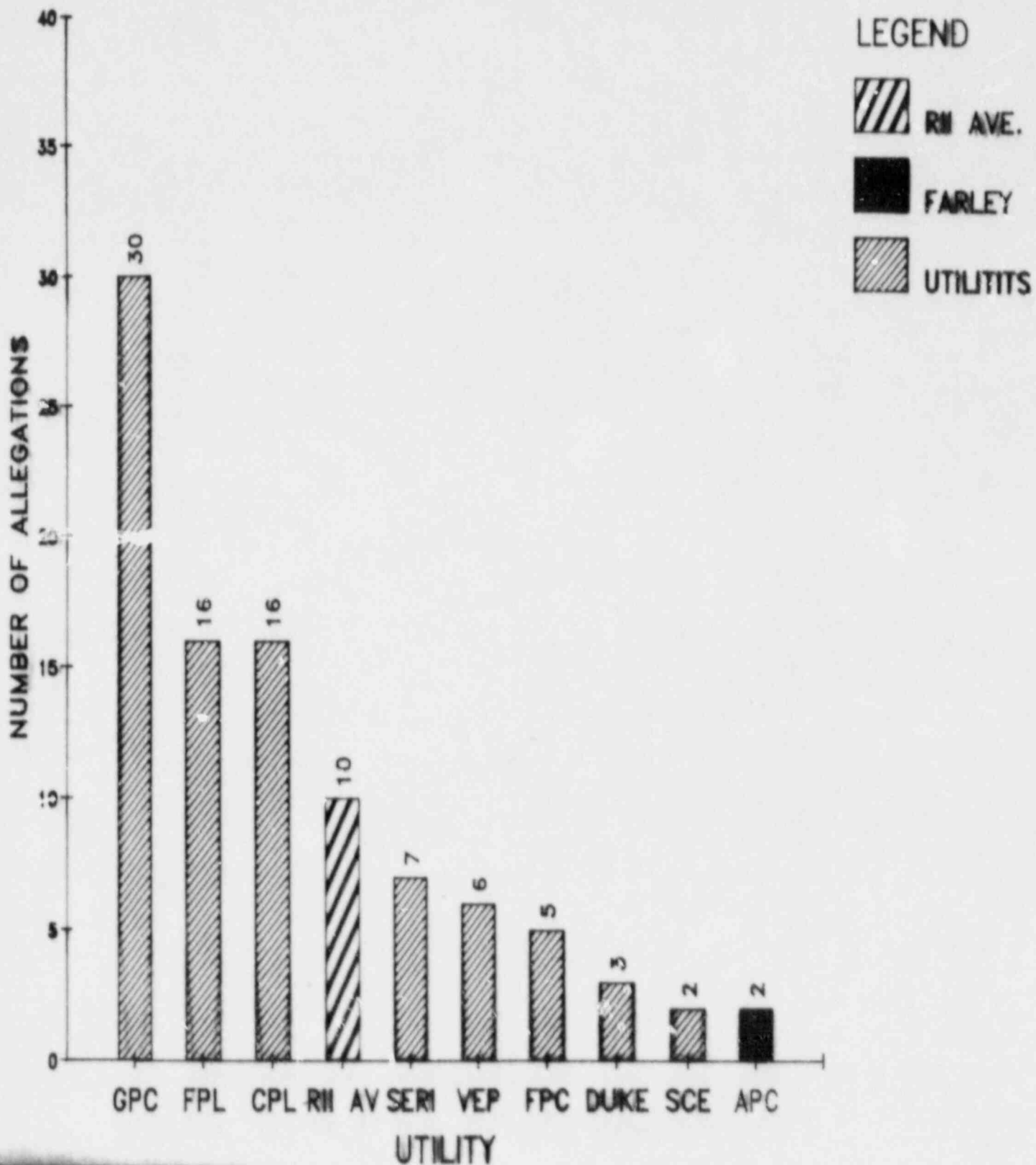
OPERATIONS PHASE VIOLATIONS/OPERATING REACTOR

August 1, 1986 through March 31, 1988



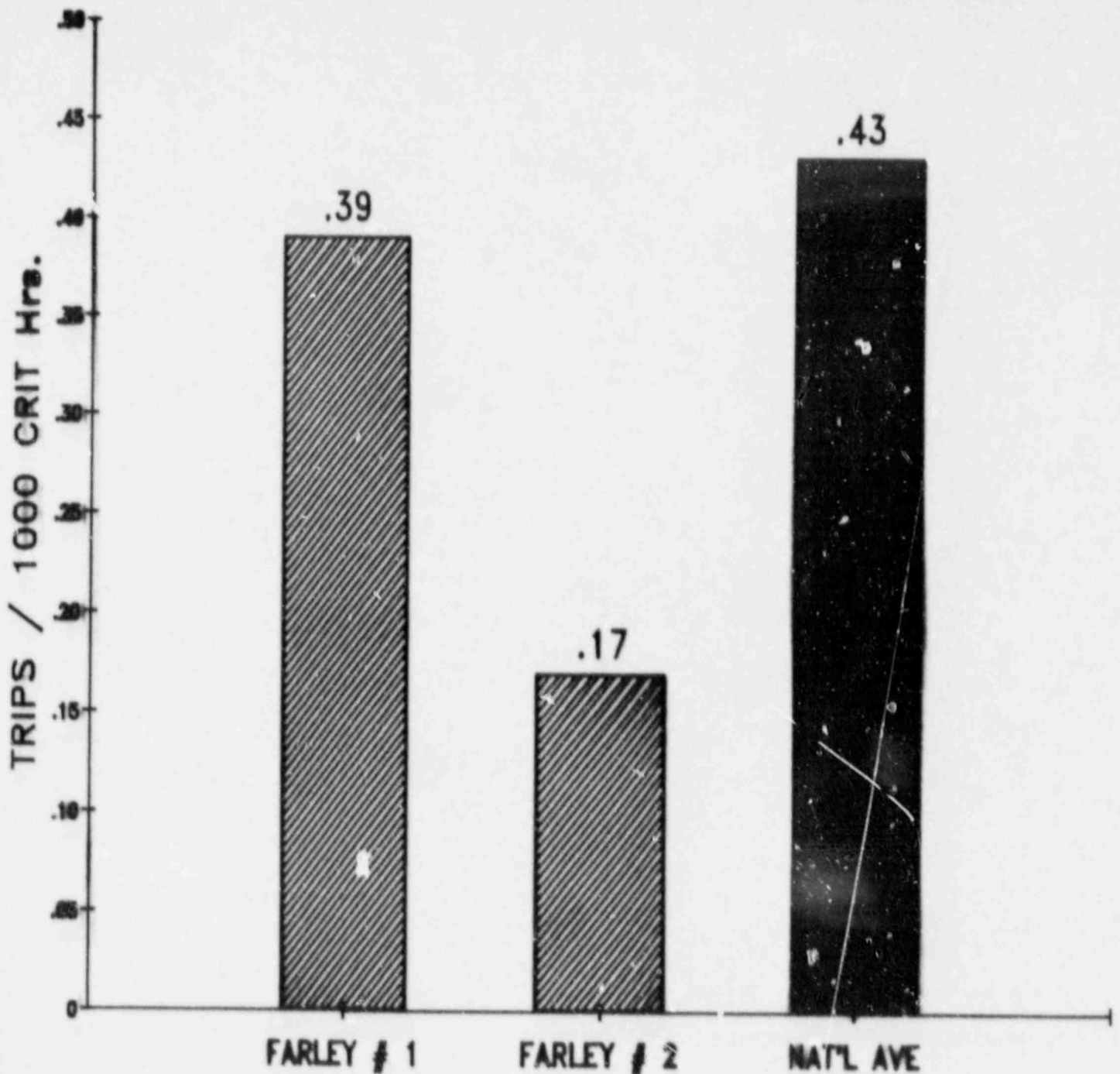
ALLEGATIONS PER UTILITY/SITE

AUGUST 31, 1986 through MARCH 31, 1988



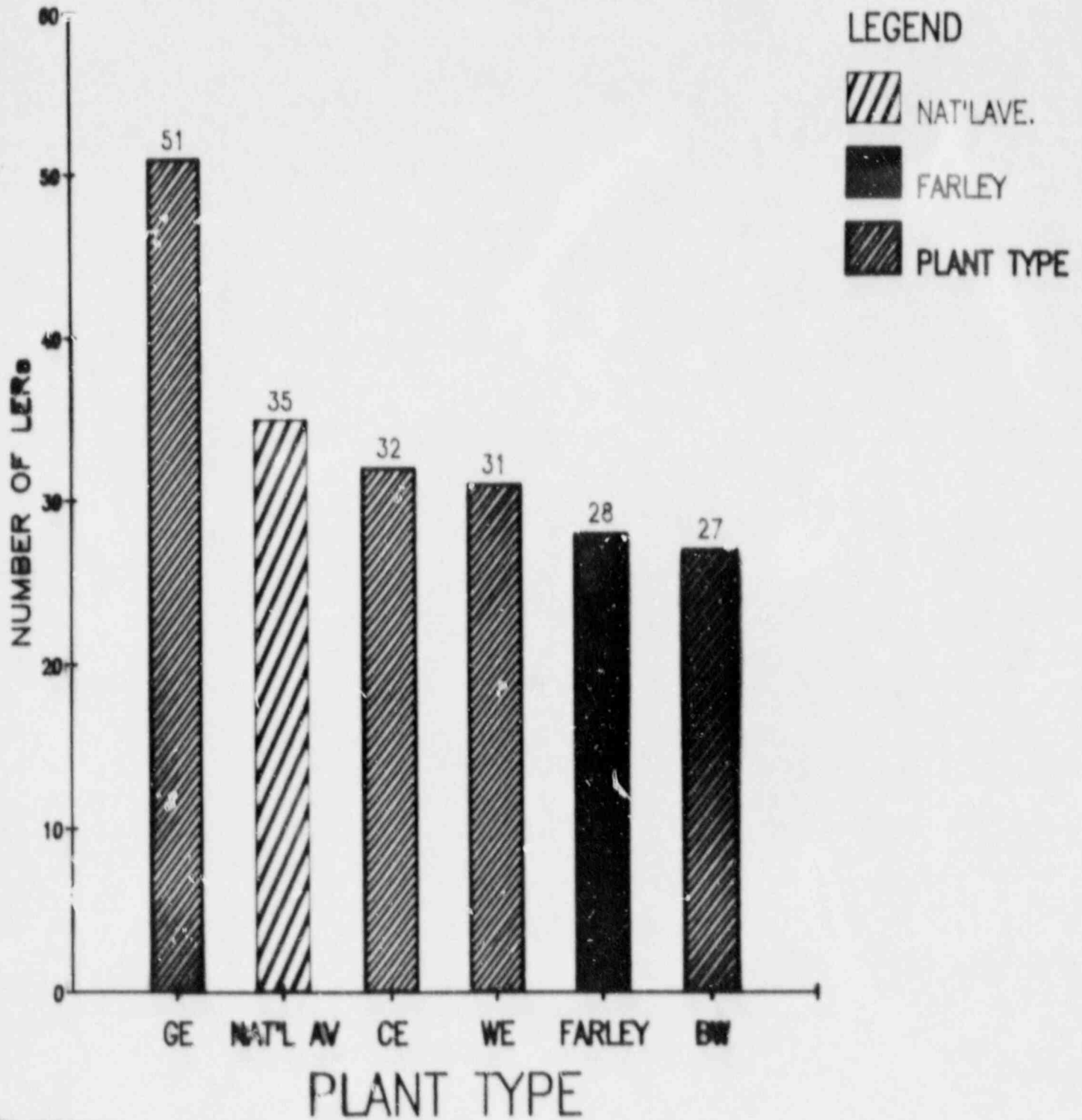
AVERAGE NUMBER OF Rx TRIPS
ABOVE 15% PWR. / 1000
CRITICAL Hrs.

AUGUST 1, 1986 through MARCH 31, 1988



LERs PER UNIT

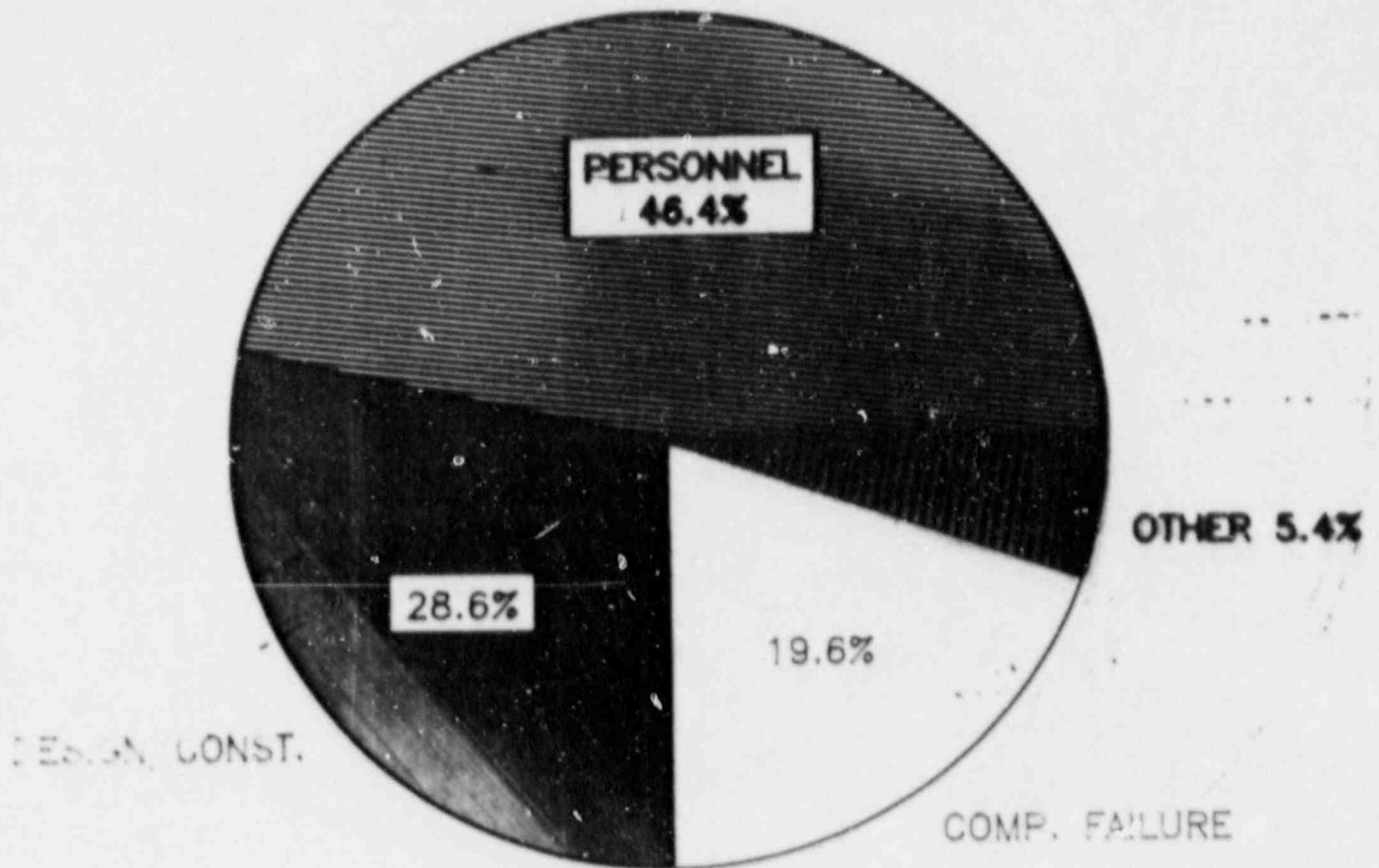
1986 through 1988



FARLEY LERs

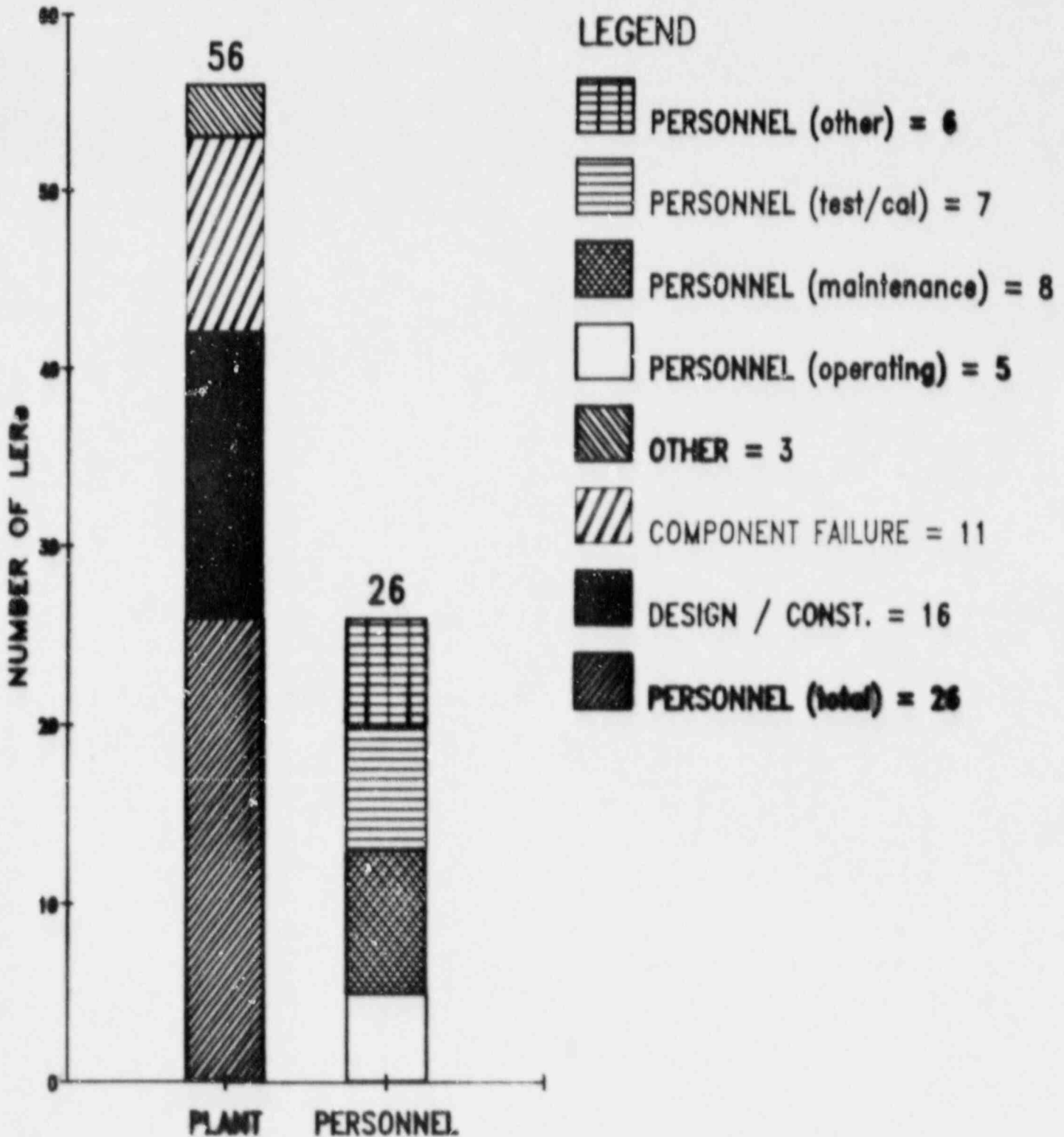
(PLANT)

AUGUST 1, 1986 through MARCH 31, 1988



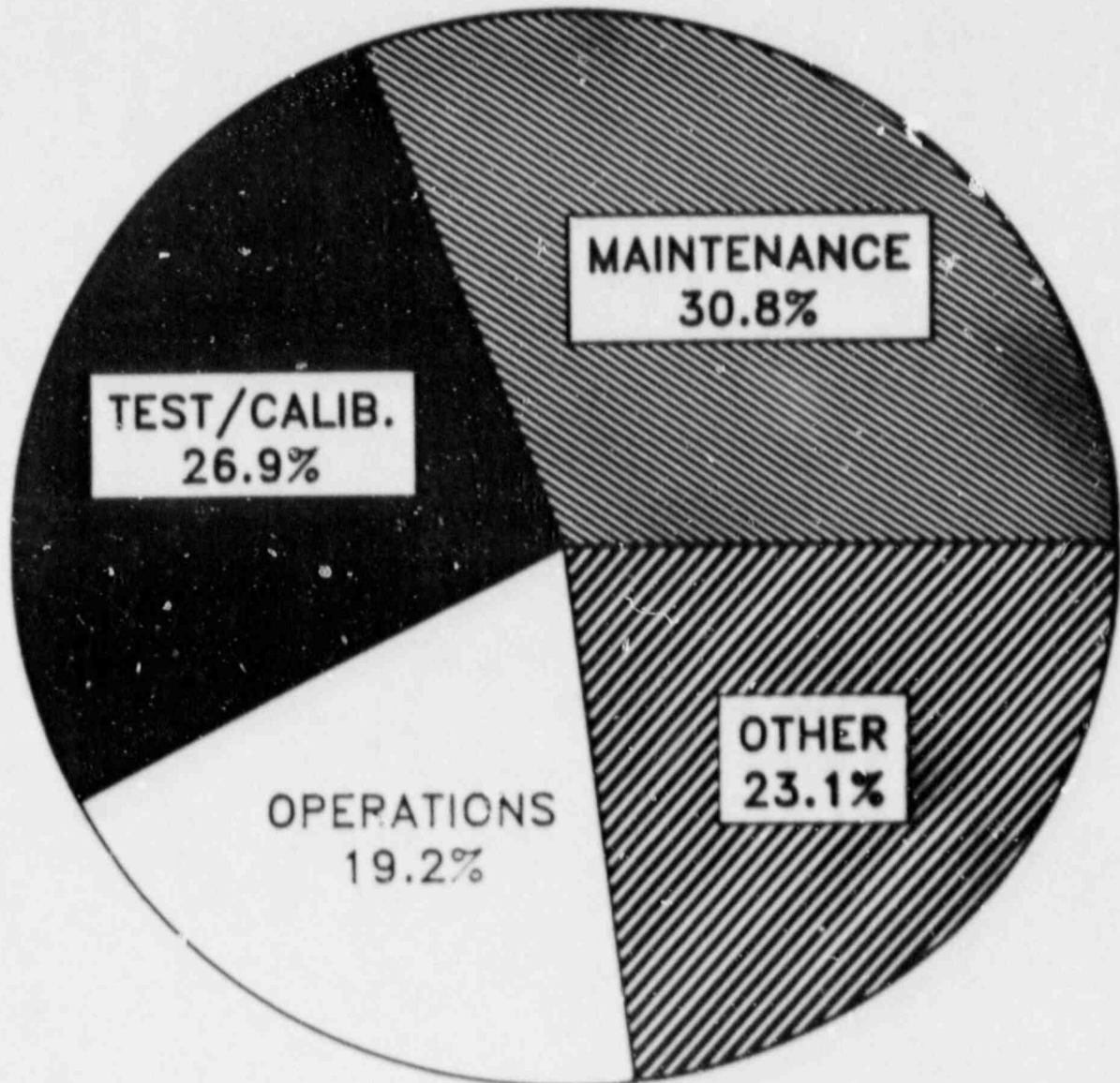
FARLEY LERs

AUGUST 1, 1986 through MARCH 31, 1988



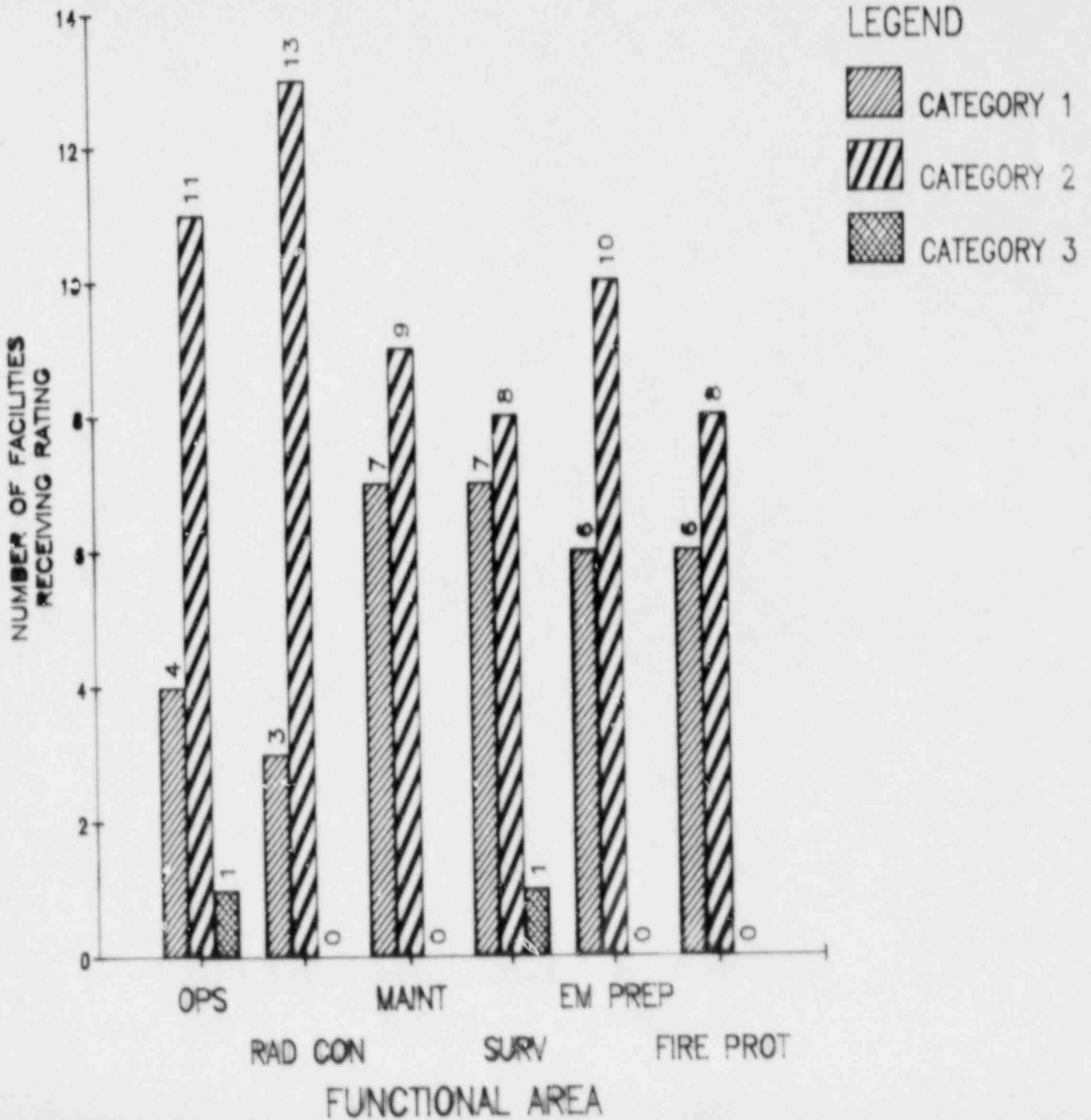
FARLEY LERs (PERSONNEL)

AUGUST 1, 1986 through MARCH 31, 1988

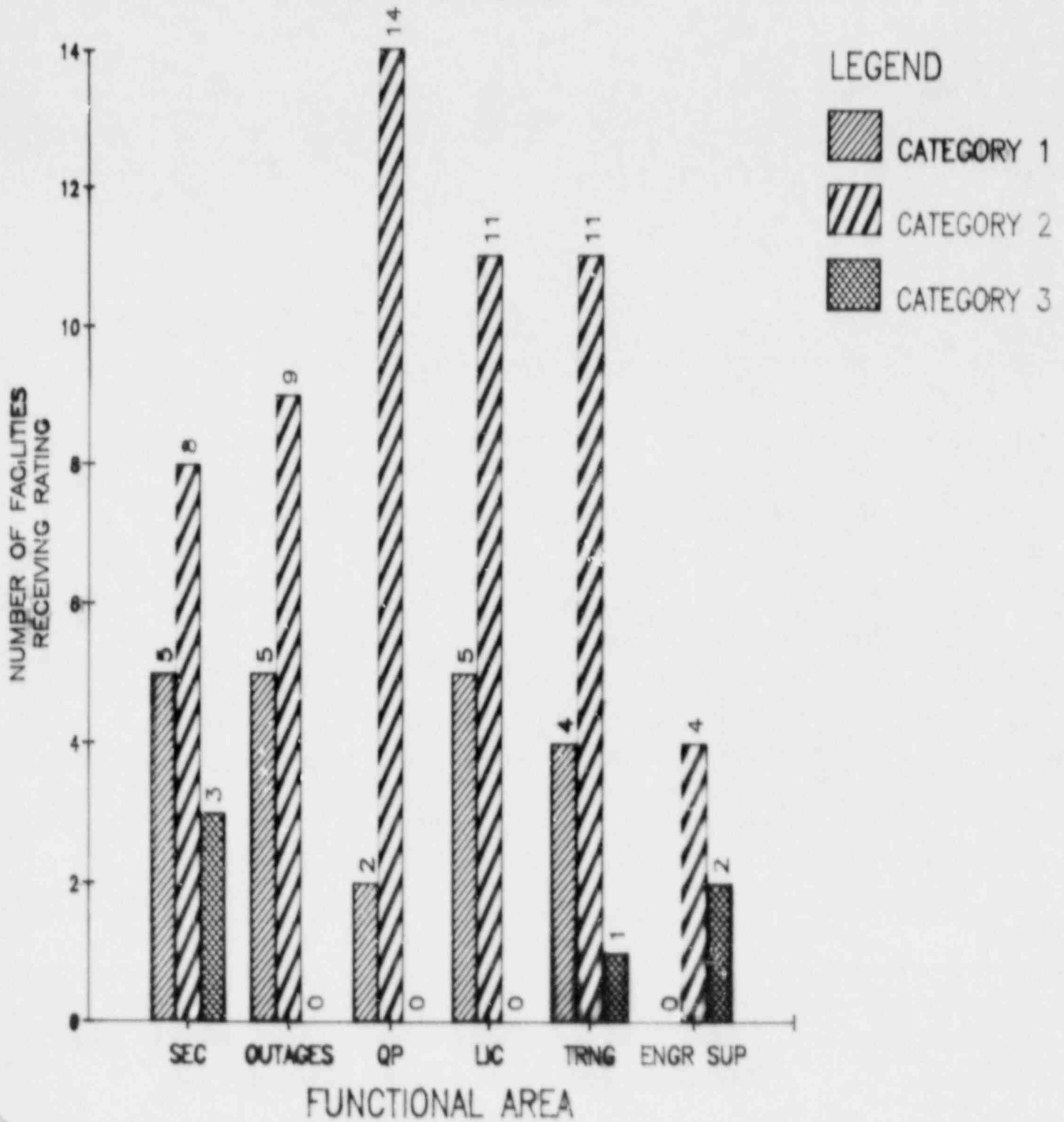


PERSONNEL

FUNCTIONAL AREA COMPARISON FOR REGION II FACILITIES CYCLE VI



FUNCTIONAL AREA COMPARISON FOR REGION II FACILITIES CYCLE VI



FARLEY

CATEGORY 1 AREAS

1. PLANT OPERATIONS
2. RADIOLOGICAL CONTROLS
3. FIRE PROTECTION
4. OUTAGES
5. LICENSING

FARLEY

CATEGORY 2 AREAS

1. MAINTENANCE
2. SURVEILLANCE
3. EMERGENCY PREPAREDNESS
4. SECURITY
5. QUALITY PROGRAMS
6. TRAINING
7. ENGINEERING SUPPORT

FARLEY

CATEGORY 3 AREAS

NONE

ENCLOSURE 2

Alabama Power Company
600 North 18th Street
Post Office Box 2641
Birmingham, Alabama 35291-0400
Telephone 205 250-1837

W. G. Hairston, III
Senior Vice President
Nuclear Operations



Alabama Power
the southern electric system

August 2, 1988

Docket Nos. 50-348
50-364

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Gentlemen:

Joseph M. Farley Nuclear Plant Units 1 and 2
NRC Inspection Report Nos. 50-348/88-04 and 50-364/88-04

By letter dated June 8, 1988, the NRC forwarded the results of the Systematic Assessment of Licensee Performance (SALP) Board evaluation of Farley Nuclear Plant for 1988. Alabama Power Company has reviewed this report and provides comments in an attachment to this letter.

Alabama Power Company appreciates the opportunity to provide comments on the SALP report and requests that these comments be considered in the NRC's final conclusion. In addition to the attached comments, Alabama Power Company requests that comments and discussions from the July 7, 1988 meeting be taken into consideration for final disposition of the SALP report.

If you have any questions, please advise.

Respectfully submitted,


W. G. Hairston, III

WGH,III/BHW:dst-V8.3

Attachments

cc: Mr. L. B. Long
Dr. J. N. Grace ✓
Mr. E. A. Reeves
Mr. W. H. Bradford

~~2248120414~~

4 PP

1988 SALP Comments
NRC Inspection Report No.
50-348/88-04 and 50-364/88-04

<u>No.</u>	<u>Reference</u>	<u>Comment</u>
1.	Page 12, 2nd ¶ (Section IV.B.1)	<p>This paragraph contains several factual errors in regard to steam generator and secondary side chemical treatment:</p> <p>The report states, "Since this sludge had already initiated tube denting, ..." Sludge has not been shown to cause tube denting. Crevice hideout and the resultant crevice pH and corrosion cause denting. Boric acid soaks and online addition was preventatively initiated on Unit 1 due to support plate crevice corrosion (a precursor of denting). The same treatment was initiated on Unit 2 due to stress corrosion cracking occurring at support plate intersections (nondenting related). Tube deformation has not been substantiated at FNP1 or FNP2 (approximately 8 tubes in 2A steam generator have questionable indications. The other tubes are not in question). Neither FNP unit has had a problem with eddy current test probe passage due to restrictions which would be caused by denting.</p> <p>The report states that the addition of boric acid "complicated the pH control needed to prevent general corrosion and pipe thinning." Boron decreases secondary pH slightly but does not cause pH control problems.</p> <p>The report states, "Consequently, the licensee planned to take two major steps to provide additional protection to the steam generators. ...beginning in the next fuel cycles, morpholine will be substituted for ammonia for pH control in an effort to maintain higher pH conditions in the carbon steel piping."</p> <p>The decision to add morpholine was not based on inadequate or complicated pH control but rather on the reduction of erosion/corrosion and of steam generator sludge loading that would be provided by using morpholine as a secondary pH elevating additive.</p>

<u>No.</u>	<u>Reference</u>	<u>Comment</u>
2.	Page 12, 2nd ¶ (Section IV.B.1)	Morpholine has been added at 4-10 ppm, not substituted for ammonia, in Unit 2 Cycle 6 and Unit 1 Cycle 9. Note that ammonia from decomposition of hydrazine is the dominant determinant in steam generator pH control.
3.	Page 15 2nd ¶ (Section IV.C.1)	The deviation for failure to control clams in service water is not indicative of the progress that has been made since August 1, 1986. Extensive testing during the SALP period has resulted in the development of an effective methodology which is environmentally acceptable.
4.	Page 26, 2nd ¶ (Section IV.I.1)	In discussing problems identified in environmental qualification and procurement control, the report states, "The licensee has been slow to acknowledge and correct some of these problems." APCo disagrees with this conclusion. Where it could be demonstrated that problems existed, APCo's corrective action was taken in a timely manner. It would appear that APCo's efforts to explore inspection findings as to their validity has been interpreted as slow acknowledgment and corrective action.
5.	Page 26, 4th ¶ (Section IV.I.1)	<p>The report states, "In January 1988, the proposal to install a vent on the 2B charging pump suction line was canceled." No proposal was canceled. A design change was voided as a result of concerns over the adequacy of the proposed design to vent the accumulated hydrogen and the fact that operational practices had been adopted to prevent adverse affects to the 2B pump.</p> <p>The report further states, "The licensee had been aware of this problem since 1979 but had not instituted permanent corrective action other than running or venting the pump." Contrary to this assertion, APCo was not aware of the <u>total</u> problem since 1979. This incorrect perception on the part of the Staff was discussed at length in the enforcement conference.</p>

<u>No.</u>	<u>Reference</u>	<u>Comment</u>
6.	Page 32, 1st & 2nd ¶ (Section IV.L.1)	<p>The report draws conclusions regarding the environmental qualification program which APCo disagrees with. Whereas the SALP is not an appropriate forum to thoroughly discuss the difference of opinions on environmental qualification, the following concerns are highlighted:</p> <ol style="list-style-type: none">1. The report states that inspections found the environmental qualification program to be marginal during the early development stages. To the contrary, correspondence and the NRC SER seem to indicate the environmental qualification program was satisfactory in the early development stages.2. The report states that inadequate staffing was a contributor to environmental qualification deficiencies. APCo does not agree that inadequate staffing was provided.3. The report cites "extensive use of unqualified terminal blocks in instrument circuits inside containment". The issue on terminal blocks has been thoroughly discussed. APCo has maintained the blocks were qualified but the issue regarding instrument inaccuracy could not be resolved until the blocks were replaced with qualified splices.4. It is inappropriate to cite the issue of upgrade of equipment qualification in accordance with 10 CFR 50.49(1) in the SALP report. This issue resulted from misunderstanding and miscommunication on behalf of both APCo and the NRC. It is not indicative of a programmatic breakdown in engineering support.