SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

March 2, 1981

JERSEY CENTRAL POWER AND LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

REGION I

PERFORMANCE EVALUATION

9 JUL 1981

REGION I SALP BOARD ASSESSMENT CRITERIA

1. BACKGROUND

As part of the effort to develop NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance" (SALP), NRC:HQ finalized and provided to the regional offices new "Evaluation Guidance" for classification of licensee performance within SALP functional areas.

2. MEETING

The Region I SALP Board convened on June 19, 1981 for the purpose of comparing the new evaluation guidance to the assessment criteria used by the Board during the Cycle I Assessment Period. It was determined that the previous "Unsatisfactory" category was directly translatable into the new "Below Average" category. Further, it was determined that a previous rating of "Satisfactory" was convertible to a new rating of "Average." The Region I SALP Board members adopted the new "Evaluation Guidance."

3. ACTION

The Board directed DRPI to modify Cycle 1 Assessment Period records to reflect the new rating categories by:

a. Striking through the previous ratings, ensuring they remain legible;

b. Typing in the corresponding new rating title;

c. Attaching a copy of this decision to each docket's package; and,

d. Providing copies of the revised package to DRPI files, IE:HQ and the Resident Inspector.

Thomas T. Martin
Thomas T. Martin
Acting Director, DETI

Eldon J. Brunner
Eldon J. Brunner
Acting Director, DRPI

George H. Smith
George H. Smith
Director, DEPOS

Walter G. Martin
Walter G. Martin
Asst. to Director

James M. Allan
James M. Allan
Deputy Director

Boyce H. Grier
Boyce H. Grier
Director

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

OYSTER CREEK NUCLEAR GENERATING STATION

REGION I EVALUATION BOARD MEETING

Facility: Oyster Creek Nuclear Generating Station

Licensee: Jersey Central Power and Light Company

Unit Identification:

Docket No.	License No./Date of Issue		Unit No.
50-219	DPR-16	April 9, 1969	1

Reactor Information:

NSS: General Electric

MWT: 1930

Assessment Period: August 1, 1980 to January 31, 1981

Evaluation Board Meeting Date: March 2, 1981

Review Board Members:

J. M. Allan, Deputy Director
E. J. Brunner, Acting Director, Division of Resident and Project Inspection
R. T. Carlson, Director, Enforcement and Investigation Staff
W. G. Martin, Assistant to the Director
W. A. Paulson, Licensing Projects Manager, Operating Reactors, Branch 5, NRR
G. H. Smith, Director, Division of Emergency Preparedness and Operational Support

Other NRC Attendees:

R. R. Keimig, Chief, Projects Branch No. 2, DRPI
E. G. Greenman, Chief, Reactor Projects Section 2A, DRPI
L. E. Briggs, Reactor Inspector
J. A. Thomas, Acting Senior Resident Reactor Inspector, Oyster Creek

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE DATA

Assessment Period: August 1, 1980 to January 31, 1981

A. Number and Nature of Noncompliance Items

1. Noncompliance Category

Infractions	7
Deficiencies	1
III	1
IV	5
V	1

2. Areas of Noncompliance

	VIO/INF/DEF	III/IV/V
Plant Operations		0/0/1
Design Changes and Modifications	0/1/0	
Radiation Protection	0/2/0	
Environmental Protection	0/4/1	
Security and Safeguards	0/0/0	1/5/0

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE DATA

Assessment Period: August 1, 1980 to January 31, 1981

. Number and Nature of Licensee Event Reports

1. Type of Events

Component Failure	18
Design/Fabrication/Analysis Errors	16
Defective Procedures	0
Personnel Errors	6
External	5
Other	1
TOTAL	46

2. Causally Linked Events

   1 event in 1 group

3. Licensee Event Reports Reviewed (Report Nos.)

   80-33 to 80-63, 81-01 to 81-06, and ETS 80-05 to 80-13

C. Escalated Enforcement Actions

Civil Penalties

None. Escalated enforcement action is in progress based on physical security inspection 80-36. Escalated enforcement action was being recommended to HQ based on third party inspection (State of Nevada), December 30, 1980 (civil penalties were not issued).

Orders

Order of August 29, 1980, requiring the licensee to submit requested documentation on environmental qualification of electrical equipment.

Order of September 19, 1980, modifying the previous order issued on August 29, 1980.

Confirmatory Order of October 2, 1980, to confirm licensee commitment to install continuous level monitoring system as required by IEB 80-17.

Order of January 9, 1981, modifying license DPR-16 to require installation of auto scram on low CRD air header pressure. Installation required by April 9, 1981. Licensee has applied for a 9-day extension.

Order of January 13, 1981, requiring the licensee to reassess containment design and install necessary modifications by December 31, 1981.

Immediate Action Letters

IAL 80-36 of October 2, 1980, to confirm licensee commitments relative to operation of the temporary waste demineralizer system.

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE DATA

Assessment Period: August 1, 1980 to January 31, 1981

D. Management Conferences Held During Past Six Months

Management meeting at the Region I Office on January 14, 1981 to discuss NRC concerns related to Physical Security Program inspection findings (Inspection No. 50-219/80-36, December 15-19, 1980) and the licensee's proposed corrective actions.

Management meeting at the Oyster Creek Nuclear Generating Station, Forked River, New Jersey, on September 25, 1980 to address NRC:RI concerns identified in the Regional SALP Evaluation Board meeting of September 22, 1980.

E. Licensee Activities

Full power operation during this period has been restricted because of the New Radwaste facilities' inability to process liquid radioactive waste at design capacity.

Plant was shutdown on the following dates for maintenance:

1. July 31 to August 4, 1980 to repair a nitrogen system leak in the drywell.
2. September 19-22, 1980 due to excessive unidentified leakage in the drywell. Leakage was from a capped feedwater check valve test connection.
3. November 22-29, 1980 to repair a feedwater heater tube leak.
4. A six week shutdown is scheduled to begin in April 1981 to make plant modifications required to satisfy NUREG 0737.

F. Inspection Activities

Routine inspection (546 hours) by resident and region-based inspectors
Reactive inspection (139 hours) by resident inspectors

G. Investigation Activities

None.

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE

Functional Area	Above Average	Average	Below Average
1. Plant Operations		X	
2. Refueling Operations		X	
3. Maintenance		X	
4. Surveillance		X	
5. Licensed Operator Training		X	
6. QA/QC		X	
7. Reporting		X	
8. Committee Activities		X	
9. Procurement		X	
10. Fire Protection		X	
11. ISI/IST		X	
12. Design Changes and Modifications		X	
13. Radiation Protection		X	
14. Environmental Protection			X
15. Emergency Preparedness		X	
16. Radioactive Waste Management		X	
17. Transportation		X	
18. Security and Safeguards			X
19. Management Controls		X	

Boyce H. Grier

Regional Director

3/2/81

Date

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

March 2, 1981
(Evaluation Date)

Jersey Central Power and Light Company
(Name of Licensee)

Oyster Creek Nuclear Generating Station
(Title of Facility)

REGION I

PERFORMANCE ANALYSIS

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

1. PLANT OPERATIONS Assessment Period 8/1/80 to 1/31/81

Analysis

This area is under continuous review by the RRI. During this evaluation period approximately 100 inspector hours were spent in this area. One item of noncompliance was identified in the operations area for failure to follow annunciator alarm procedures, further addressed under (18) Management Controls.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

2. REFUELING OPERATIONS Assessment Period 8/1/80 to 1/31/81

Analysis

Inspection by resident and region based inspectors in the Post-refueling area (36 inspector hours) identified no items of noncompliance. Last refueling outage was completed in July 1980. There were two items of noncompliance as a result of five inspections in this area during the outage. The next refueling outage is scheduled for October 1981.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

3. MAINTENANCE Assessment Period 8/1/80 to 1/31/81

Analysis

Inspection by the resident inspector has not resulted in any items of noncompliance. Maintenance activities were inspected once (3 inspector hours) during this assessment period.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

4. SURVEILLANCE

Assessment Period 8/1/80 to 1/31/81

Analysis

Inspection by the resident inspector (4 inspector hours) has not resulted in any items of noncompliance.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

5. LICENSED OPERATOR TRAINING Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection in this area during the assessment period. A training inspection is scheduled to be conducted during the month of April 1981. This area was previously rated unsatisfactory based on HP Technician training (see No. 13 Radiation Protection).

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

6. QA/QC   Assessment Period 8/1/80 to 1/31/81

Analysis

No inspections have been performed in this area during assessment period. This area was rated satisfactory during the previous assessment period based on inspections conducted by both PAB and region based inspectors.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

7. REPORTING Assessment Period 8/1/80 to 1/31/81

Analysis

As a result of continuing LER, Bulletin and periodic report reviews, this area is under continuous evaluation by the resident inspector. Approximately 106 inspector hours were spent during this period in this area. No items of noncompliance were identified.

Conclusion

Average performance.

PERFORMANCE ANALYSIS

8. COMMITTEE ACTIVITIES

Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection of this area was conducted during this period. No items of noncompliance were identified. Increased inspection effort was previously recommended in this area due to one item of noncompliance identified during the Health Physics Appraisal inspection (80-17, not yet issued) in the Area of H.P. Audits. This inspection finding will be reviewed for licensee corrective action subsequent to report 80-17 issuance.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

9. PROCUREMENT

Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection has been performed in this area during this assessment period. During the last evaluation period this area was inspected by PAB; no items of noncompliance were identified.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

10. FIRE PROTECTION Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection was conducted in this area during the evaluation period; however, routine inspection during plant tours (approximately 15 inspector hours) by the resident inspector has not resulted in any items of noncompliance in this area.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

11. ISI/IST Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspections of this area during assessment period. During the previous evaluation period one item of noncompliance (management controls) was identified for failure to implement the IST program for pumps and valves as required by ASME, Section XI. The PAB inspection (79-18) identified no items of noncompliance in the In-Service Inspection (ISI) area but indicated a weakness in the coordination of the licensee's program. Licensee action was in progress at that time to accumulate all available data to establish the remaining ISI to be completed to fulfill the requirements of their first ten (10) year ISI program. A preliminary Region I data review subsequent to the PAB inspection, indicated that requirements were being met. Inspection of the licensee's ISI/IST Program is scheduled to be conducted during the next 6-month evaluation period.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

12. DESIGN CHANGES AND MODIFICATIONS   Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection has been performed in this area during assessment period; however, the resident inspectors have identified numerous LER's relating to repetetive safety related instrument setpoint drift problems. An inspection was conducted (50-219/80-06) on March 9-10, 1981 (outside evaluation period) to determine if an adequate engineering evaluation had been performed before the subject instruments had been installed during the last refueling outage. Results of that inspection indicate that switches of higher quality and design accuracy were installed but have not performed within design specifications. A program has been initiated by the licensee to identify and correct setpoint drift problems.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

1 RADIATION PROTECTION Assessment Period 8/1/80 to 1/31/81

Analysis

During this period of review two inspections were conducted by the Radiation Support Section and no items of noncompliance were identified. The bulk of these inspections took place prior to the period under review. Both inspections concluded August 1, 1980.

Increased inspection effort (approximately 25 routine inspector hours and approximately 75 hours reactive) has been directed by the resident inspectors during the period under review to assure the licensee's adherence to station radiation protection procedures. Two items of noncompliance were identified, relating to failure to follow contamination control procedures. The licensee's radiation protection staff has been supplemented by contractor technicians. Significant organizational changes have been implemented with the formation of the G.P.U. Nuclear Group.

There has been a significant increase in the involvement of the Radiological Engineering Group in ALARA implementation. To further implement the September 1980 recommendations of the Region I SALP Board for increased inspection effort, an inspection was scheduled for the week of March 2, 1981 by Radiation Support to further assess the effectiveness of the Radiation Protection Organizational changes. Results of this inspection (subsequent to the assessment period) indicated that the licensee's performance is acceptable in this area. One item of noncompliance relating to control of procedure changes was identified. The licensee has implemented additional HP technician training but the training program needs to be fully formalized and retraining requirements established. No other weaknesses in the Radiation Protection area were identified.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

14. ENVIRONMENTAL PROTECTION   Assessment Period 8/1/80 to 1/31/81

Analysis

One environmental inspection (50 inspector hours) was conducted September 22-26, October 15, 1980. This inspection disclosed 5 items of noncompliance, (failure to follow QA procedure; failure to have procedures; failure to conform to Reg Guide 1.23; failure to perform required calibrations and channel checks of thermal monitoring system; failure to have all required thermal monitoring instrumentation and inadequate air sampler design pursuant to ANSI N13.1-1969). Response to report (issued 1/30/81) has not yet been received.

Conclusion

Below average performance in non-radiological environmental protection area. Recommend increased inspection frequency; however, due to recommended inspection priority, letter Thornburg to Grier dated 2/9/81, increased inspection will not be conducted.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

15. EMERGENCY PREPAREDNESS   Assessment Period 8/1/80 to 1/31/81

Analysis

The last review of the OC Emergency planning program took place on May 12-15, 1980 during the HP appraisal. As a result, an IAL was issued relating to deficient procedures, training and definition of the emergency organization. The licensee's immediate actions were adequate to resolve concerns itemized in the IAL. A number of additional findings, however, remained for resolution in development of the NUREG 0654 plan and implementation.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

RADIOACTIVE WASTE MANAGEMENT Assessment Period 8/1/80 to 1/31/81

Analysis

There were no inspections directed exclusively to Radioactive Waste Management during the evaluation period. However, during an inspection which concluded August 1, 1980 radioactive waste related records, shipping documents and procedure changes, including changes to verify that packages were surveyed for free standing liquids, were reviewed. No noncompliance was noted.

The licensee has implemented organizational changes to improve the management controls in this area. A supervisor for radioactive waste operations and a supervisor for radioactive waste shipping have been permanently assigned. Additionally, personnel specifically trained in the Radwaste System Operations are utilized rather than having equipment operators performing these functions as a collateral duty.

There were 16 total inspections conducted at burial sites during 1980. One item of noncompliance was identified during an inspection performed by the State of Nevada in December 1980 which identified an improper shipment, further discussed under Item 17, "Transportation."

The operation of the Radioactive Waste Treatment System has been impaired by extensive contamination of the process building due to design inadequacies. The licensee has initiated a design review of the radioactive waste system and is presently modifying the building's ventilation system to decrease the spread of contamination and enhance operations.

In accordance with the recommendations of the Region I SALP Board which met in September 1980, an inspection was scheduled for the week of March 2, 1981, to access the status of the Radioactive Waste Operations. Results of this inspection (subsequent to the assessment period) indicated that the licensee's performance is acceptable in this area. No items of noncompliance were identified.

The last independent measurements inspection was conducted on May 13-15, 1980 with the Region I mobile lab. No items of noncompliance were identified. The licensee's measurements were in agreement with the NRC's.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

17. TRANSPORTATION Assessment Period: 8/1/80 to 1/31/81

Analysis

During this evaluation period radioactive waste shipments to Beatty, Nevada have been inspected 3 times with 11 total inspections conducted at Beatty since January 1980. One noncompliance was identified during a 3rd party inspection on December 30, 1980 when one drum of waste leaked liquid through 4 pin-holes in the bottom of the drum. The licensee's permit for disposal at the Beatty burial site was revoked. The permit was subsequently restored after a meeting between site management and the State of Nevada. Escalated enforcement action is being recommended to HQ in this case as a test of the 3rd party inspection effort. The licensee was also inspected 5 times during 1980 by Region II (Barnwell) with no items of noncompliance identified. On February 19, 1981 (outside evaluation period) a licensee shipment of irradiated fuel was surveyed by the resident inspector and no items of noncompliance were identified. An inspection of this area was scheduled for the week of March 2, 1981. Results of this inspection (subsequent to the assessment period) indicated acceptable performance in this area. Additional steps including procedure changes and the implementation of a more rigorous quality assurance program had been taken by the licensee.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

1' SECURITY AND SAFEGUARDS Assessment Period 8/1/80 to 1/31/81

Analysis

Routine resident inspection (approximately 20 hours) and one region based inspection (80-36; 64 inspector hours) on December 15-19, 1980 resulted in six (6) violations. One violation (failure to maintain the integrity of a vital area) was a Severity Level III violation. Security Management at Oyster Creek was aware of the degraded vital barrier but took no compensatory action until the violation was identified during the inspection. Other violations identified were:

(a) failure to use an approved ID badge.
(b) failure to change security combination and failure to audit security keys.
(c) failure to assure the explosive detectors met the required performance characteristics.
(d) failure to meet the .2 foot candle lighting requirement.
(e) failure to retain security records for the required period.

The Severity Level III violation was of additional concern due to the decision by the Security Supervisor not to take compensatory measures for the degraded barrier. Civil penalty was recommended but was not issued.

Conclusion

Below Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

.9. MANAGEMENT CONTROLS Assessment Period 8/1/80 to 1/31/81

Analysis

Approximately 20 inspector-hours are directly attributed to this area, and findings in other areas are evaluated from a management perspective. During this evaluation period there has been improvement in this area. There have been no items of noncompliance specifically in the area of management controls. The licensee's organizational changes have placed more direct senior level management attention on site and are indicative of a commitment to further improve this area. However, during this evaluation period, there have been two items of noncompliance for failure to follow health physics procedures, one item of noncompliance for failure to follow operating procedures, and six items of noncompliance in the security and safeguards area. In addition, the slow progress being made in the licensee's effort to decontaminate the reactor building and to remove the large quantity of contaminated tools and equipment remaining from the 1980 refueling, and the low level of management attention given to the large number of LER's resulting from instrument repeatability (details Section 12) are indicative of apparent weaknesses in the area of management control.

Conclusion

Average performance.

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

March 2, 1981
Evaluation Date

Jersey Central Power and Light Company

Oyster Creek Nuclear Generating Station

REGION I

SUPPLEMENTAL INFORMATION

OYSTER CREEK NUCLEAR RATING STATION

ENFORCEMENT HISTORY FROM AUGUST 1, 1980 to JANUARY 31, 1981

Inspection Number	Severity	Functional Area	Subject
80-28	INF	HP	Protective clothing being removed outside contamination controlled area.
	INF	HP	Four individuals working in contamination controlled area without required Protective clothing.
	INF	Design	Temporary waste Water Drain installed without adequate process controls resulting in a spill of Radioactive liquid.
80-30	INF	Environmental	Failure of licensee to respond to internal audit finding.
	INF	Environmental	Inadequate procedures for action to be taken for: failure of environmental temperature monitors; dilution pump operation; and recorder calibration.
	INF	Environmental	Control room environmental recorders not calibrated on a regular 6 month basis.
	INF	Environmental	Failure to channel check environmental thermal monitoring equipment.
	DEF	Environmental	Only 1 of 2 channels of 3 temperature monitors met ETS accuracy requirements.
* 80-36	Level III	Security	Vital barrier (floor gratings) into 4160 Volt room not secured.
	Level IV	Security	Non picture badges being used for unescorted access.
	Level IV	Security	Annual audit of protected area keys and annual security safe combination change not performed.
	Level IV	Security	Performance test not conducted on explosives detector.

Inspection Number	Severity	Functional Area	Subject
(cont'd)			
* 80-36	Level IV	Security	Lighting in two protected areas did not meet the requirements of the approved security plan.
	Level IV	Security	Temporary badge log not maintained for 1 year.
* 81-01	Level V	Operations	Failure to follow annunciator procedure.

* Report Not Issued

Oyster Creek

ENFORCEMENT SUMMARY From August 1, 1980 To January 31, 1981

50-219 — Docket No.

I — Unit No.

	Functional Area of Noncompliance	VIO	INF	DEF	III	IV	V	VI
1.	Plant Operations						1	
2.	Refueling Operations							
3.	Maintenance							
4.	Surveillance							
5.	Licensed Operator Training							
6.	QA/QC							
7.	Reporting							
8.	Committee Activities							
9.	Procurement							
10.	Fire Protection							
11.	ISI/IST							
12.	Design Changes and Modification		1					
13.	Radiation Protection		2					
14.	Environmental Protection		4	1				
15.	Emergency Preparedness							
16.	Radioactive Waste Management							
17.	Transportation							
18.	Security and Safeguards				1	5		
19.	Management Controls							
	Totals		7	1	1	5	1	

LICENSEE EVENT REP SYNOPSIS
AUGUST 1, 1980 TO J. RY 31, 1981

LER NUMBER	TYPE	CAUSE CODE	DESCRIPTION
80-33	30 Day	E	Torus oxygen concentration exceeded 5 percent 24 hours after placing mode switch in "Run".
80-34	30 Day	C	Overload trip on SGTS exhaust fan 1-8 during routine surveillance test.
80-35	30 Day	B	High drywell pressure switches IP-15A and IP-15D tripped at a value greater than specified.
80-36	30 Day	E	Stack release rates not continuously monitored due to failure of stack gas sample system.
80-37	30 Day	A	Standby Gas Treatment System operated in degraded mode.
80-38	30 Day	B	Triple Low water level sensor RE-18B exceeded its required set-point.
80-39	30 Day	B	Low Pressure Main Steam Line sensor RE-23B and RE-23D tripped at a value less than specified.
80-40	30 Day	E	Hydraulic snubber number S1/6 failed to lock up in compression and tension during functional testing.
80-41	30 Day	E	Core Spray System II removed from service to repair a leaking vent line.
80-42	30 Day	B	High drywell pressure switches IP-15A, IP-15B, and IP-15C tripped at values greater than specified.
80-43	30 Day	B	Reactor triple low water level sensor RE-18D exceeded its required setpoint.
80-44	30 Day	A	Core Spray System I removed from service when booster pump motors became wet following inadvertent actuation of the fire suppression system.
80-45	30 Day	E	Core Spray System I removed from service to repair a leaking vent line.

LER NUM.	TYPE	CAUSE CODE	DESCRIPTION
80-46	30 Day	A	Pressure drop across the upstream HEPA of SGTS II exceeded specified limits.
80-47	30 Day	B	High drywell pressure switches RV-46A, RV-46B, RV-46C, and RV-46D setpoints exceeded specified values.
80-48	30 Day	E	Hydraulic snubber number 23-7 failed to lock up in tension during functional testing.
80-49	24 Hour	E	Isolation Condenser vent valves V-14-1 and V-14-19 failed to close when actuated from the control Room.
80-50	30 Day	B	High drywell pressure switches IP-15A, IP-15B, IP-15C, and IP-15D tripped at values greater than specified.
80-51	30 Day	A	Daily surveillance for APLHGR, LHGR, and MCPR was not performed.
80-52	30 Day	B	Reactor triple low water level sensors RE-18A and RE-18D tripped at values higher than specified.
80-53	30 Day (10*)	E	Control rod drive hydraulic pumps removed from service one at a time to repair leaks on pump seal/bearing water piping.
80-54	30 Day (11*)	E	Core Spray System I removed from service to inspect pump motors wetted by CRD hydraulic leaks.
80-55	30 Day	B	High drywell pressure switches RV-46B, RV-46C, and RV-46D tripped at values greater than specified.
80-56	30 Day	B	Main steam line high flow switches RE-22C and RE-22G tripped at values greater than desired.
80-57	30 Day	B	High drywell pressure switches IP-15A, IP-15B, IP-15C, and IP-15D tripped at values greater than specified.
80-58	30 Day	E	Hydraulic snubbers 19/6 and 19/7 failed to lock up during functional testing.

LER NUI	TYPE	CAUSE CODE	DESCRI.
80-59	30 Day	A	Monthly surveillance for the main station battery and diesel generator starting batteries was not performed.
80-60	30 Day	B	Isolation Condenser pipe break sensors IB11A1, IB11A2, IB11B1, and IB11B2 tripped at values greater than specified.
80-61	30 Day	E	Hydraulic snubbers 19/11, 19/12, and 19/13 failed to lock up during functional testing.
80-62	30 Day	E	Control rod drive hydraulic pump NC-08A failed in service.
80-63	30 Day	B	Reactor triple low water level sensor RE-18A tripped at a value greater than specified.
81-01	30 Day	B	High drywell pressure switch IP-15C tripped at a value greater than specified.
81-02	30 Day	E	Stack gas activity was not continuously monitored due to trip of sample pump.
81-03	30 Day	E	Fire hydrant number 2 inoperable due to a frozen barrel.
81-04	24 Hour	B	Load on emergency generators during design basis accident could exceed full load rating.
81-05	30 Day	X	Emergency service water pump 52B failed to demonstrate operability.
81-06	30 Day	B	Reactor triple low water level sensor tripped at a value greater than specified.
80-05E	30 Day	E	Dilution pump tripped and was not restarted within 15 minutes.
80-06E	30 Day	C	Condenser discharge temperature exceeded 106°F.
80-07E	30 Day	E	Dilution pump tripped and was not restarted within 15 minutes.
80-08E	30 Day	E	Dilution pump was not placed in service when bridge temperature exceeded 87°F.
80-09E	30 Day	C	Unusually high blue crab mortality.

LER NUMBER	TYPE	CAUSE CODE	DESCRIPTION
80-10E	30 Day	E	Less than two dilution pumps operating when intake temperature was below 60°F.
80-11E	30 Day	C	Fish kill in lagoons along Oyster Creek.
80-12E	30 Day	C	Fish kill in Oyster Creek during a controlled plant shutdown.
80-13E	30 Day	A	Less than two dilution pumps operating when intake temperature was below 60°F.

NOTES: CAUSE CODES:
A - Personnel Error
B - Design/Manufacturing, Construction/Installation
C - External Cause
D - Defective Procedures
E - Component Failure
X - Other

*Causally linked event element
(Xo) Initial group element
(Xy) Subsequent group element(s)

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

March 2, 1981

JERSEY CENTRAL POWER AND LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

REGION I

PERFORMANCE EVALUATION

9 JUL 1981

REGION I SALP BOARD ASSESSMENT CRITERIA

1. BACKGROUND

As part of the effort to develop NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance" (SALP), NRC:HQ finalized and provided to the regional offices new "Evaluation Guidance" for classification of licensee performance within SALP functional areas.

2. MEETING

The Region I SALP Board convened on June 19, 1981 for the purpose of comparing the new evaluation guidance to the assessment criteria used by the Board during the Cycle I Assessment Period. It was determined that the previous "Unsatisfactory" category was directly translatable into the new "Below Average" category. Further, it was determined that a previous rating of "Satisfactory" was convertible to a new rating of "Average." The Region I SALP Board members adopted the new "Evaluation Guidance."

3. ACTION

The Board directed DRPI to modify Cycle 1 Assessment Period records to reflect the new rating categories by:

a. Striking through the previous ratings, ensuring they remain legible;

b. Typing in the corresponding new rating title;

c. Attaching a copy of this decision to each docket's package; and,

d. Providing copies of the revised package to DRPI files, IE:HQ and the Resident Inspector.

Thomas T. Martin
Thomas T. Martin
Acting Director, DETI

EJ Brunner
Eldon J. Brunner
Acting Director, DRPI

George H. Smith
George H. Smith
Director, DEPOS

Walter G. Martin
Walter G. Martin
Asst. to Director

James M. Allan
James M. Allan
Deputy Director

Boyce H. Grier
Boyce H. Grier
Director

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

OYSTER CREEK NUCLEAR GENERATING STATION

REGION I EVALUATION BOARD MEETING

Facility: Oyster Creek Nuclear Generating Station

Licensee: Jersey Central Power and Light Company

Unit Identification:

Docket No.	License No./Date of Issue		Unit No.
50-219	DPR-16	April 9, 1969	I

Reactor Information:

NSS: General Electric

MWT: 1930

Assessment Period: August 1, 1980 to January 31, 1981

Evaluation Board Meeting Date: March 2, 1981

Review Board Members:

J. M. Allan, Deputy Director
E. J. Brunner, Acting Director, Division of Resident and Project Inspection
R. T. Carlson, Director, Enforcement and Investigation Staff
W. G. Martin, Assistant to the Director
W. A. Paulson, Licensing Projects Manager, Operating Reactors, Branch 5, NRR
G. H. Smith, Director, Division of Emergency Preparedness and Operational Support

Other NRC Attendees:

R. R. Keimig, Chief, Projects Branch No. 2, DRPI
E. G. Greenman, Chief, Reactor Projects Section 2A, DRPI
L. E. Briggs, Reactor Inspector
J. A. Thomas, Acting Senior Resident Reactor Inspector, Oyster Creek

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE DATA

Assessment Period: August 1, 1980 to January 31, 1981

A. Number and Nature of Noncompliance Items

1. Noncompliance Category

Infractions	7
Deficiencies	1
III	1
IV	5
V	1

2. Areas of Noncompliance

	VIO/INF/DEF	III/IV/V
Plant Operations		0/0/1
Design Changes and Modifications	0/1/0	
Radiation Protection	0/2/0	
Environmental Protection	0/4/1	
Security and Safeguards	0/0/0	1/5/0

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE DATA

Assessment Period: August 1, 1980 to January 31, 1981

Number and Nature of Licensee Event Reports

1. Type of Events

Component Failure	18
Design/Fabrication/Analysis Errors	16
Defective Procedures	0
Personnel Errors	6
External	5
Other	1
TOTAL	46

2. Causally Linked Events

   1 event in 1 group

3. Licensee Event Reports Reviewed (Report Nos.)

   80-33 to 80-63, 81-01 to 81-06, and ETS 80-05 to 80-13

C. Escalated Enforcement Actions

Civil Penalties

None. Escalated enforcement action is in progress based on physical security inspection 80-36. Escalated enforcement action was being recommended to HQ based on third party inspection (State of Nevada), December 30, 1980 (civil penalties were not issued).

Orders

Order of August 29, 1980, requiring the licensee to submit requested documentation on environmental qualification of electrical equipment.

Order of September 19, 1980, modifying the previous order issued on August 29, 1980.

Confirmatory Order of October 2, 1980, to confirm licensee commitment to install continuous level monitoring system as required by IEB 80-17.

Order of January 9, 1981, modifying license DPR-16 to require installation of auto scram on low CRD air header pressure. Installation required by April 9, 1981. Licensee has applied for a 9-day extension.

Order of January 13, 1981, requiring the licensee to reassess containment design and install necessary modifications by December 31, 1981.

Immediate Action Letters

IAL 80-36 of October 2, 1980, to confirm licensee commitments relative to operation of the temporary waste demineralizer system.

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE DATA

Assessment Period: August 1, 1980 to January 31, 1981

D. Management Conferences Held During Past Six Months

Management meeting at the Region I Office on January 14, 1981 to discuss NRC concerns related to Physical Security Program inspection findings (Inspection No. 50-219/80-36, December 15-19, 1980) and the licensee's proposed corrective actions.

Management meeting at the Oyster Creek Nuclear Generating Station, Forked River, New Jersey, on September 25, 1980 to address NRC:RI concerns identified in the Regional SALP Evaluation Board meeting of September 22, 1980.

E. Licensee Activities

Full power operation during this period has been restricted because of the New Radwaste facilities' inability to process liquid radioactive waste at design capacity.
Plant was shutdown on the following dates for maintenance:

1. July 31 to August 4, 1980 to repair a nitrogen system leak in the drywell.
2. September 19-22, 1980 due to excessive unidentified leakage in the drywell. Leakage was from a capped feedwater check valve test connection.
3. November 22-29, 1980 to repair a feedwater heater tube leak.
4. A six week shutdown is scheduled to begin in April 1981 to make plant modifications required to satisfy NUREG 0737.

F. Inspection Activities

Routine inspection (546 hours) by resident and region-based inspectors
Reactive inspection (139 hours) by resident inspectors

G. Investigation Activities

None.

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE

Functional Area	Above Average	Average	Below Average
1. Plant Operations		X	
2. Refueling Operations		X	
3. Maintenance		X	
4. Surveillance		X	
5. Licensed Operator Training		X	
6. QA/QC		X	
7. Reporting		X	
8. Committee Activities		X	
9. Procurement		X	
10. Fire Protection		X	
11. ISI/IST		X	
12. Design Changes and Modifications		X	
13. Radiation Protection		X	
14. Environmental Protection			X
15. Emergency Preparedness		X	
16. Radioactive Waste Management		X	
17. Transportation		X	
18. Security and Safeguards			X
19. Management Controls		X	

Boyce H. Grier
Regional Director

3/2/81
Date

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

March 2, 1981
(Evaluation Date)

Jersey Central Power and Light Company
(Name of Licensee)

Oyster Creek Nuclear Generating Station
(Title of Facility)

REGION I

PERFORMANCE ANALYSIS

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

1. PLANT OPERATIONS Assessment Period 8/1/80 to 1/31/81

Analysis

This area is under continuous review by the RRI. During this evaluation period approximately 100 inspector hours were spent in this area. One item of noncompliance was identified in the operations area for failure to follow annunciator alarm procedures, further addressed under (18) Management Controls.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

2. REFUELING OPERATIONS   Assessment Period 8/1/80 to 1/31/81

Analysis

Inspection by resident and region based inspectors in the Post-refueling area (36 inspector hours) identified no items of noncompliance. Last refueling outage was completed in July 1980. There were two items of noncompliance as a result of five inspections in this area during the outage. The next refueling outage is scheduled for October 1981.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

3. MAINTENANCE Assessment Period 8/1/80 to 1/31/81

Analysis

Inspection by the resident inspector has not resulted in any items of noncompliance. Maintenance activities were inspected once (3 inspector hours) during this assessment period.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

4. SURVEILLANCE

Assessment Period 8/1/80 to 1/31/81

Analysis

Inspection by the resident inspector (4 inspector hours) has not resulted in any items of noncompliance.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

5. LICENSED OPERATOR TRAINING Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection in this area during the assessment period. A training inspection is scheduled to be conducted during the month of April 1981. This area was previously rated unsatisfactory based on HP Technician training (see No. 13 Radiation Protection).

Conclusion

Average performance.

PERFORMANCE ANALYSIS

6. QA/QC Assessment Period 8/1/80 to 1/31/81

Analysis

No inspections have been performed in this area during assessment period. This area was rated satisfactory during the previous assessment period based on inspections conducted by both PAB and region based inspectors.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

7. REPORTING | Assessment Period 8/1/80 to 1/31/81

Analysis

As a result of continuing LER, Bulletin and periodic report reviews, this area is under continuous evaluation by the resident inspector. Approximately 106 inspector hours were spent during this period in this area. No items of noncompliance were identified.

Conclusion

Average performance.

PERFORMANCE ANALYSIS

8. COMMITTEE ACTIVITIES Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection of this area was conducted during this period. No items of noncompliance were identified. Increased inspection effort was previously recommended in this area due to one item of noncompliance identified during the Health Physics Appraisal inspection (80-17, not yet issued) in the Area of H.P. Audits. This inspection finding will be reviewed for licensee corrective action subsequent to report 80-17 issuance.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

9. PROCUREMENT — Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection has been performed in this area during this assessment period. During the last evaluation period this area was inspected by PAB; no items of noncompliance were identified.

Conclusion

Average performance.

PERFORMANCE ANALYSIS

10. FIRE PROTECTION Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection was conducted in this area during the evaluation period; however, routine inspection during plant tours (approximately 15 inspector hours) by the resident inspector has not resulted in any items of noncompliance in this area.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

11. ISI/IST Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspections of this area during assessment period. During the previous evaluation period one item of noncompliance (management controls) was identified for failure to implement the IST program for pumps and valves as required by ASME, Section XI. The PAB inspection (79-18) identified no items of noncompliance in the In-Service Inspection (ISI) area but indicated a weakness in the coordination of the licensee's program. Licensee action was in progress at that time to accumulate all available data to establish the remaining ISI to be completed to fulfill the requirements of their first ten (10) year ISI program. A preliminary Region I data review subsequent to the PAB inspection, indicated that requirements were being met. Inspection of the licensee's ISI/IST Program is scheduled to be conducted during the next 6-month evaluation period.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

12. DESIGN CHANGES AND MODIFICATIONS   Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection has been performed in this area during assessment period; however, the resident inspectors have identified numerous LER's relating to repetetive safety related instrument setpoint drift problems. An inspection was conducted (50-219/80-06) on March 9-10, 1981 (outside evaluation period) to determine if an adequate engineering evaluation had been performed before the subject instruments had been installed during the last refueling outage. Results of that inspection indicate that switches of higher quality and design accuracy were installed but have not performed within design specifications. A program has been initiated by the licensee to identify and correct setpoint drift problems.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

1 RADIATION PROTECTION Assessment Period 8/1/80 to 1/31/81

Analysis

During this period of review two inspections were conducted by the Radiation Support Section and no items of noncompliance were identified. The bulk of these inspections took place prior to the period under review. Both inspections concluded August 1, 1980.

Increased inspection effort (approximately 25 routine inspector hours and approximately 75 hours reactive) has been directed by the resident inspectors during the period under review to assure the licensee's adherence to station radiation protection procedures. Two items of noncompliance were identified, relating to failure to follow contamination control procedures. The licensee's radiation protection staff has been supplemented by contractor technicians. Significant organizational changes have been implemented with the formation of the G.P.U. Nuclear Group.

There has been a significant increase in the involvement of the Radiological Engineering Group in ALARA implementation. To further implement the September 1980 recommendations of the Region I SALP Board for increased inspection effort, an inspection was scheduled for the week of March 2, 1981 by Radiation Support to further assess the effectiveness of the Radiation Protection Organizational changes. Results of this inspection (subsequent to the assessment period) indicated that the licensee's performance is acceptable in this area. One item of noncompliance relating to control of procedure changes was identified. The licensee has implemented additional HP technician training but the training program needs to be fully formalized and retraining requirements established. No other weaknesses in the Radiation Protection area were identified.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

14. ENVIRONMENTAL PROTECTION Assessment Period 8/1/80 to 1/31/81

Analysis

One environmental inspection (50 inspector hours) was conducted September 22-26, October 15, 1980. This inspection disclosed 5 items of noncompliance, (failure to follow QA procedure; failure to have procedures; failure to conform to Reg Guide 1.23; failure to perform required calibrations and channel checks of thermal monitoring system; failure to have all required thermal monitoring instrumentation and inadequate air sampler design pursuant to ANSI N13.1-1969). Response to report (issued 1/30/81) has not yet been received.

Conclusion

Below average performance in non-radiological environmental protection area. Recommend increased inspection frequency; however, due to recommended inspection priority, letter Thornburg to Grier dated 2/9/81, increased inspection will not be conducted.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

15. EMERGENCY PREPAREDNESS Assessment Period 8/1/80 to 1/31/81

Analysis

The last review of the OC Emergency planning program took place on May 12-15, 1980 during the HP appraisal. As a result, an IAL was issued relating to deficient procedures, training and definition of the emergency organization. The licensee's immediate actions were adequate to resolve concerns itemized in the IAL. A number of additional findings, however, remained for resolution in development of the NUREG 0654 plan and implementation.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

RADIOACTIVE WASTE MANAGEMENT   Assessment Period 8/1/80 to 1/31/81

Analysis

There were no inspections directed exclusively to Radioactive Waste Management during the evaluation period. However, during an inspection which concluded August 1, 1980 radioactive waste related records, shipping documents and procedure changes, including changes to verify that packages were surveyed for free standing liquids, were reviewed. No noncompliance was noted.

The licensee has implemented organizational changes to improve the management controls in this area. A supervisor for radioactive waste operations and a supervisor for radioactive waste shipping have been permanently assigned. Additionally, personnel specifically trained in the Radwaste System Operations are utilized rather than having equipment operators performing these functions as a collateral duty.

There were 16 total inspections conducted at burial sites during 1980. One item of noncompliance was identified during an inspection performed by the State of Nevada in December 1980 which identified an improper shipment, further discussed under Item 17, "Transportation."

The operation of the Radioactive Waste Treatment System has been impaired by extensive contamination of the process building due to design inadequacies. The licensee has initiated a design review of the radioactive waste system and is presently modifying the building's ventilation system to decrease the spread of contamination and enhance operations.

In accordance with the recommendations of the Region I SALP Board which met in September 1980, an inspection was scheduled for the week of March 2, 1981, to access the status of the Radioactive Waste Operations. Results of this inspection (subsequent to the assessment period) indicated that the licensee's performance is acceptable in this area. No items of noncompliance were identified.

The last independent measurements inspection was conducted on May 13-15, 1980 with the Region I mobile lab. No items of noncompliance were identified. The licensee's measurements were in agreement with the NRC's.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

17. TRANSPORTATION   Assessment Period: 8/1/80 to 1/31/81

Analysis

During this evaluation period radioactive waste shipments to Beatty, Nevada have been inspected 3 times with 11 total inspections conducted at Beatty since January 1980. One noncompliance was identified during a 3rd party inspection on December 30, 1980 when one drum of waste leaked liquid through 4 pin-holes in the bottom of the drum. The licensee's permit for disposal at the Beatty burial site was revoked. The permit was subsequently restored after a meeting between site management and the State of Nevada. Escalated enforcement action is being recommended to HQ in this case as a test of the 3rd party inspection effort. The licensee was also inspected 5 times during 1980 by Region II (Barnwell) with no items of noncompliance identified. On February 19, 1981 (outside evaluation period) a licensee shipment of irradiated fuel was surveyed by the resident inspector and no items of noncompliance were identified. An inspection of this area was scheduled for the week of March 2, 1981. Results of this inspection (subsequent to the assessment period) indicated acceptable performance in this area. Additional steps including procedure changes and the implementation of a more rigorous quality assurance program had been taken by the licensee.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

1' SECURITY AND SAFEGUARDS Assessment Period 8/1/80 to 1/31/81

Analysis

Routine resident inspection (approximately 20 hours) and one region based inspection (80-36; 64 inspector hours) on December 15-19, 1980 resulted in six (6) violations. One violation (failure to maintain the integrity of a vital area) was a Severity Level III violation. Security Management at Oyster Creek was aware of the degraded vital barrier but took no compensatory action until the violation was identified during the inspection. Other violations identified were:

(a) failure to use an approved ID badge.
(b) failure to change security combination and failure to audit security keys.
(c) failure to assure the explosive detectors met the required performance characteristics.
(d) failure to meet the .2 foot candle lighting requirement.
(e) failure to retain security records for the required period.

The Severity Level III violation was of additional concern due to the decision by the Security Supervisor not to take compensatory measures for the degraded barrier. Civil penalty was recommended but was not issued.

Conclusion

Below Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

9. MANAGEMENT CONTROLS — Assessment Period 8/1/80 to 1/31/81

Analysis

Approximately 20 inspector-hours are directly attributed to this area, and findings in other areas are evaluated from a management perspective. During this evaluation period there has been improvement in this area. There have been no items of noncompliance specifically in the area of management controls. The licensee's organizational changes have placed more direct senior level management attention on site and are indicative of a commitment to further improve this area. However, during this evaluation period, there have been two items of noncompliance for failure to follow health physics procedures, one item of noncompliance for failure to follow operating procedures, and six items of noncompliance in the security and safeguards area. In addition, the slow progress being made in the licensee's effort to decontaminate the reactor building and to remove the large quantity of contaminated tools and equipment remaining from the 1980 refueling, and the low level of management attention given to the large number of LER's resulting from instrument repeatability (details Section 12) are indicative of apparent weaknesses in the area of management control.

Conclusion

Average performance.

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

March 2, 1981
Evaluation Date

Jersey Central Power and Light Company

Oyster Creek Nuclear Generating Station

REGION I

SUPPLEMENTAL INFORMATION

OYSTER CREEK NUCLEAR 'RATING STATION

ENFORCEMENT HISTORY FROM AUGUST 1, 1980 to JANUARY 31, 1981

Inspection Number	Severity	Functional Area	Subject
80-28	INF	HP	Protective clothing being removed outside contamination controlled area.
	INF	HP	Four individuals working in contamination controlled area without required Protective clothing.
	INF	Design	Temporary waste Water Drain installed without adequate process controls resulting in a spill of Radioactive liquid.
80-30	INF	Environmental	Failure of licensee to respond to internal audit finding.
	INF	Environmental	Inadequate procedures for action to be taken for: failure of environmental temperature monitors; dilution pump operation; and recorder calibration.
	INF	Environmental	Control room environmental recorders not calibrated on a regular 6 month basis.
	INF	Environmental	Failure to channel check environmental thermal monitoring equipment.
	DEF	Environmental	Only 1 of 2 channels of 3 temperature monitors met ETS accuracy requirements.
* 80-36	Level III	Security	Vital barrier (floor gratings) into 4160 Volt room not secured.
	Level IV	Security	Non picture badges being used for unescorted access.
	Level IV	Security	Annual audit of protected area keys and annual security safe combination change not performed.
	Level IV	Security	Performance test not conducted on explosives detector.

Inspection Number	Severity	Functional Area	Subject
(cont'd) * 80-36	Level IV	Security	Lighting in two protected areas did not meet the requirements of the approved security plan.
	Level IV	Security	Temporary badge log not maintained for 1 year.
* 81-01	Level V	Operations	Failure to follow annunciator procedure.

* Report Not Issued

Oyster Creek

ENFORCEMENT SUMMARY From August 1, 1980 To January 31, 1981

50-219 — Docket No.

I — Unit No.

	Functional Area of Noncompliance	VIO	INF	DEF	III	IV	V	VI
1.	Plant Operations						1	
2.	Refueling Operations							
3.	Maintenance							
4.	Surveillance							
5.	Licensed Operator Training							
6.	QA/QC							
7.	Reporting							
8.	Committee Activities							
9.	Procurement							
10.	Fire Protection							
11.	ISI/IST							
12.	Design Changes and Modification		1					
13.	Radiation Protection		2					
14.	Environmental Protection		4	1				
15.	Emergency Preparedness							
16.	Radioactive Waste Management							
17.	Transportation							
18.	Security and Safeguards				1	5		
19.	Management Controls							
	Totals		7	1	1	5	1	

SEVERITY LEVEL: VIO/INF/DEF III IV V VI

LICENSEE EVENT REP SYNOPSIS
AUGUST 1, 1980 TO J. RY 31, 1981

LER NUMBER	TYPE	CAUSE CODE	DESCRIPTION
80-33	30 Day	E	Torus oxygen concentration exceeded 5 percent 24 hours after placing mode switch in "Run".
80-34	30 Day	C	Overload trip on SGTS exhaust fan 1-8 during routine surveillance test.
80-35	30 Day	B	High drywell pressure switches IP-15A and IP-15D tripped at a value greater than specified.
80-36	30 Day	E	Stack release rates not continuously monitored due to failure of stack gas sample system.
80-37	30 Day	A	Standby Gas Treatment System operated in degraded mode.
80-38	30 Day	B	Triple Low water level sensor RE-18B exceeded its required setpoint.
80-39	30 Day	B	Low Pressure Main Steam Line sensor RE-23B and RE-23D tripped at a value less than specified.
80-40	30 Day	E	Hydraulic snubber number S1/6 failed to lock up in compression and tension during functional testing.
80-41	30 Day	E	Core Spray System II removed from service to repair a leaking vent line.
80-42	30 Day	B	High drywell pressure switches IP-15A, IP-15B, and IP-15C tripped at values greater than specified.
80-43	30 Day	B	Reactor triple low water level sensor RE-18D exceeded its required setpoint.
80-44	30 Day	A	Core Spray System I removed from service when booster pump motors became wet following inadvertent actuation of the fire suppression system.
80-45	30 Day	E	Core Spray System I removed from service to repair a leaking vent line.

LER NUM.	TYPE	CAUSE CODE	DESCRIPTION
80-46	30 Day	A	Pressure drop across the upstream HEPA of SGTS II exceeded specified limits.
80-47	30 Day	B	High drywell pressure switches RV-46A, RV-46B, RV-46C, and RV-46D setpoints exceeded specified values.
80-48	30 Day	E	Hydraulic snubber number 23-7 failed to lock up in tension during functional testing.
80-49	24 Hour	E	Isolation Condenser vent valves V-14-1 and V-14-19 failed to close when actuated from the control room.
80-50	30 Day	B	High drywell pressure switches IP-15A, IP-15B, IP-15C, and IP-15D tripped at values greater than specified.
80-51	30 Day	A	Daily surveillance for APLHGR, LHGR, and MCPR was not performed.
80-52	30 Day	B	Reactor triple low water level sensors RE-18A and RE-18D tripped at values higher than specified.
80-53	30 Day (10*)	E	Control rod drive hydraulic pumps removed from service one at a time to repair leaks on pump seal/bearing water piping.
80-54	30 Day (11*)	E	Core Spray System I removed from service to inspect pump motors wetted by CRD hydraulic leaks.
80-55	30 Day	B	High drywell pressure switches RV-46B, RV-46C, and RV-46D tripped at values greater than specified.
80-56	30 Day	B	Main steam line high flow switches RE-22C and RE-22G tripped at values greater than desired.
80-57	30 Day	B	High drywell pressure switches IP-15A, IP-15B, IP-15C, and IP-15D tripped at values greater than specified.
80-58	30 Day	E	Hydraulic snubbers 19/5 and 19/7 failed to lock up during functional testing.

? NUI	TYPE	CAUSE CODE	DESCRI.
80-59	30 Day	A	Monthly surveillance for the main station battery and diesel generator starting batteries was not performed.
80-60	30 Day	B	Isolation Condenser pipe break sensors IB11A1, IB11A2, IB11B1, and IB11B2 tripped at values greater than specified.
80-61	30 Day	E	Hydraulic snubbers 19/11, 19/12, and 19/13 failed to lock up during functional testing.
80-62	30 Day	E	Control rod drive hydraulic pump NC-08A failed in service.
80-63	30 Day	B	Reactor triple low water level sensor RE-18A tripped at a value greater than specified.
81-01	30 Day	B	High drywell pressure switch IP-15C tripped at a value greater than specified.
81-02	30 Day	E	Stack gas activity was not continuously monitored due to trip of sample pump.
81-03	30 Day	E	Fire hydrant number 2 inoperable due to a frozen barrel.
81-04	24 Hour	B	Load on emergency generators during design basis accident could exceed full load rating.
81-05	30 Day	X	Emergency service water pump 52B failed to demonstrate operability.
81-06	30 Day	B	Reactor triple low water level sensor tripped at a value greater than specified.
80-05E	30 Day	E	Dilution pump tripped and was not restarted within 15 minutes.
80-06E	30 Day	C	Condenser discharge temperature exceeded 106^{o}F.
80-07E	30 Day	E	Dilution pump tripped and was not restarted within 15 minutes.
80-08E	30 Day	E	Dilution pump was not placed in service when bridge temperature exceeded 87^{o}F.
80-09E	30 Day	C	Unusually high blue crab mortality.

LER NUMBER	TYPE	CAUSE CODE	DESCRIPTION
80-10E	30 Day	E	Less than two dilution pumps operating when intake temperature was below 60°F.
80-11E	30 Day	C	Fish kill in lagoons along Oyster Creek.
80-12E	30 Day	C	Fish kill in Oyster Creek during a controlled plant shutdown.
80-13E	30 Day	A	Less than two dilution pumps operating when intake temperature was below 60°F.

NOTES: CAUSE CODES:

A - Personnel Error
B - Design/Manufacturing, Construction/Installation
C - External Cause
D - Defective Procedures
E - Component Failure
X - Other

*Causally linked event element
(Xo) Initial group element
(Xy) Subsequent group element(s)

JUN 1 0 1988

50-219

Ira J. Zarin, Esq.
One Gateway Center
Suite 1612
Newark, New Jersey 07102-5311

Dear Mr. Zarin:

Your letter of May 3, 1988 to the U. S. Nuclear Regulatory Commission (NRC) has been referred to me for reply. In your letter you requested information regarding radiation exposure at the Oyster Creek nuclear plant during the years 1980 and 1983. You also requested a copy of the Systematic Assessment of Licensee Performance report for the same period.

Enclosure 1 provides summary reports regarding the radiation exposure experience at U. S. nuclear power plants during the years 1980 through 1983. Oyster Creek is discussed both generally and specifically in these reports. Similar summaries of exposure data are published by the NRC in annual volumes of NUREG-0713, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors, (year): Annual Report." The data used for these summaries are provided by the licensees pursuant to Title 10 of the Code of Federal Regulations, Section 20.407 (10 CFR 20.407) and NRC Regulatory Guide (RG) 1.16. Enclosure 2 provides copies of the 10 CFR 20.407 and RG 1.16 reports received from the licensee for Oyster Creek from 1980 through 1983. Enclosure 3 provides copies of the Systematic Assessment of Licensee Performance report for the same period.

Copies of NUREG-0713 and other reports that discuss radiation exposure at Oyster Creek (such as inspection reports) can be found at the NRC Public Document Room, 1717 H Street, N.W., Washington, D.C. 20555 and the Local Public Document Room for the Oyster Creek Nuclear Generating Station, Ocean County Library, 101 Washington Street, Toms River, New Jersey 08753.

I trust that this information is responsive to your needs.

Sincerely,
Original signed by
Thomas E. Murley
Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

Enclosures:
As stated

*See previous concurrence

OFC	:LA:PDI-4	:PM:PDI-4	:D:PDI-4	:TECH ED	:DRP:ADRI	:DRP:DIR	:ADPR
NAME	:SMNorris*	:ADromerick*:ah	JFStolz*	:*	:*BABoger	:*SAVarga	:FJMiraglia
DATE	:06/02/88	:06/02/88	:06/02/88	:06/02/88	:06/6/88	:06/7/88	:06/7/88

OFC	:NRR:DIR	:	:	:	:	:	:
NAME	:TEMurley	:	:	:	:	:	:
DATE	:06/9/88	:	:	:	:	:	:

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ENCLOSURE 1

Oyster Creek 1 (Jersey Central P+L)(BWR)   RG 1.16   '80

DPR-16

NUMBER OF PERSONNEL AND MAN REMS BY WORK AND JOB FUNCTION - OYSTER CREEK

Work & Job Function	Number of Personnel *			Total Man-Rem		
	Station Employees	** Utility Employees	Contract Workers and Others	Station Employees	Utility Employees	Contract Workers and Others
Reactor Operations & Surveillance						
Maintenance Personnel	81	24	124	6.925	.667	8.145
Operating Personnel	85	3	14	65.446	.011	1.412
Health Physics Personnel	6	0	36	.285	.003	1.915
Supervisory Personnel	20	3	2	4.281	.287	.004
Engineering Personnel	31	15	39	4.551	.933	5.676
Routine Maintenance						
Maintenance Personnel	156	61	630	87.580	51.345	212.279
Operating Personnel	76	6	22	9.442	1.753	2.216
Health Physics Personnel	24	0	257	33.309	.000	145.316
Supervisory Personnel	24	9	2	10.115	1.307	.001
Engineering Personnel	41	25	48	11.333	9.687	4.600
Inservice Inspection						
Maintenance Personnel	67	37	253	3.667	4.766	89.671
Operating Personnel	42	2	21	2.541	.439	8.638
Health Physics Personnel	6	0	10	.293	.000	.559
Supervisory Personnel	15	3	1	2.771	.104	.000
Engineering Personnel	29	6	28	4.522	.354	3.283
Special Maintenance						
Maintenance Personnel	123	59	738	73.898	77.172	685.941
Operating Personnel	53	4	26	6.770	3.047	7.079
Health Physics Personnel	11	0	76	.530	.000	11.188
Supervisory Personnel	15	7	1	2.656	.989	.000
Engineering Personnel	30	16	41	7.178	1.226	7.023
Waste Processing						
Maintenance Personnel	69	12	70	5.450	2.874	9.759
Operating Personnel	22	1	5	.915	.230	.502
Health Physics Personnel	1	0	26	.005	.000	2.078
Supervisory Personnel	4	0	2	.202	.000	.007
Engineering Personnel	8	0	8	.983	.000	.829
Refueling						
Maintenance Personnel	88	30	130	40.610	3.990	16.823
Operating Personnel	57	4	14	18.529	.734	2.061
Health Physics Personnel	4	0	22	.224	.000	2.197
Supervisory Personnel	11	0	0	2.108	.000	.000
Engineering Personnel	15	4	4	3.195	.055	.129
TOTAL						
Maintenance Personnel	157	64	903	218.130	140.814	1,022.618
Operating Personnel	99	8	50	103.643	6.214	21.908
Health Physics Personnel	24	0	264	34.646	.000	163.253
Supervisory Personnel	24	12	4	22.133	2.687	.012
Engineering Personnel	46	31	74	31.762	12.255	21.540
Grand Total	350	115	1,295	410.314	161.970	1,229.331

* - The individual personnel "Totals" do not necessarily reflect the sum of the personnel listed under each category due to the fact that personnel performed various functions during the year and may have been included in more than one "WORK & JOB FUNCTION".

** - UTILITY EMPLOYEES - All GPU and JCP&L employees not permanently assigned to Oyster Creek

Oyster Creek 1   20.407   '80

Personnel Exposures for Calendar Year 1980
Jersey Central Power & Light Company
License No. DPR-16

~~Total number of personnel for whom monitoring was provided ---------- 2,238~~

No measurable exposure	272
Exposure less than 0.1	463
0.1 to 0.25	303
0.25 to 0.5	230
0.5 to 0.75	135
0.75 to 1	120
1 to 2	476
2 to 3	173
3 to 4	62
4 to 5	4
5 to 6	0
6 to 7	0
7 to 8	0
8 to 9	0
9 to 10	0
10 to 11	0
11 to 12	0
More than 12	0
	2,238

P/

BWR - Oyster Creek

ATTACHMENT 2

NUMBER OF PERSONNEL AND MAN REMS BY WORK AND JOB FUNCTION - OYSTER CREEK

Work & Job Function	Number of Personnel *			Total Man-Rem		
	Station Employees	**Utility Employees	Contract Workers and Others	Station Employees	Utility Employees	Contract Workers and Others
Reactor Operations & Surveillance						
Maintenance Personnel	68	4	36	3.292	.128	4.861
Operating Personnel	87	1	5	19.888	.000	..754
Health Physics Personnel	10	0	31	.223	.000	4.240
Supervisory Personnel	8	0	0	1.210	.000	.000
Engineering Personnel	16	1	8	1.008	.052	1.163
Routine Maintenance						
Maintenance Personnel	212	43	401	136.137	19.997	99.819
Operating Personnel	115	2	39	49.239	2.169	2.429
Health Physics Personnel	34	0	131	11.974	.000	78.331
Supervisory Personnel	36	1	3	7.672	.372	.005
Engineering Personnel	45	6	63	3.482	.288	5.144
Inservice Inspection						
Maintenance Personnel	24	0	42	.522	.000	5.562
Operating Personnel	11	0	7	.383	.000	.334
Health Physics Personnel	5	0	8	.172	.000	.418
Supervisory Personnel	11	0	0	.213	.000	.000
Engineering Personnel	15	4	16	.337	.035	2.265
Special Maintenance						
Maintenance Personnel	182	29	477	42.541	7.766	136.303
Operating Personnel	70	2	23	8.503	.688	3.763
Health Physics Personnel	17	0	79	1.909	.000	9.593
Supervisory Personnel	18	0	0	3.275	.000	.000
Engineering Personnel	18	3	33	1.733	.035	2.595
Waste Processing						
Maintenance Personnel	102	2	37	5.090	.003	3.729
Operating Personnel	26	0	3	1.758	.000	.067
Health Physics Personnel	3	0	10	.127	.000	2.467
Supervisory Personnel	2	0	1	.031	.000	.000
Engineering Personnel	0	0	4	.000	.000	.096
Refueling						
Maintenance Personnel	3	1	0	.020	.005	.000
Operating Personnel	0	0	0	0	0	0
Health Physics Personnel	0	0	0	0	0	0
Supervisory Personnel	0	0	0	0	0	0
Engineering Personnel	1	0	0	.010	.000	.000
TOTAL						
Maintenance Personnel	215	43	554	187.602	27.899	250.274
Operating Personnel	116	2	52	79.771	2.857	7.347
Health Physics Personnel	35	0	135	14.405	.000	95.049
Supervisory Personnel	38	1	4	12.401	.372	.005
Engineering Personnel	51	9	78	6.570	.410	11.263
Grand Total	455	55	823	300.749	31.538	363.938

* - The individual personnel "Totals" do not necessarily reflect the sum of the personnel listed under each category due to the fact that personnel performed various functions during the year and may have been included in more than one "WORK & JOB FUNCTION".

** - UTILITY EMPLOYEES - All GPU and JCP&L employees not permanently assigned to Oyster Creek.

BWR Oyster Creek (81

RG 1.16

BWR- Oyster Creek

20.407

ATTACHMENT 1

PERSONNEL WHOLE BODY EXPOSURES FOR CALENDAR YEAR 19 81

Licensee Reporting (Name & Address)	License No.
Oyster Creek Nuclear Generating Station Docket No. 50-219 P. O. Box 388 Forked River, New Jersey 08731	DPR-16

Annual Dose Ranges* (rem)	Number of Individuals in Each Range
No Measurable Exposure	218
Measurable Exposure Less Than 0.10	554
0.10 -- 0.25	322
0.25 -- 0.50	214
0.50 -- 0.75	168
0.75 -- 1	125
1 -- 2	233
2 -- 3	67
3 -- 4	6
4 -- 5	
5 -- 6	
6 -- 7	
7 -- 8	
8 -- 9	
9 -- 10	
10 -- 11	
11 -- 12	
12 +	

Total number of individuals reported 1907

The above information is submitted for the total number of individuals for whom personnel monitoring was (check one)

[ ] required under 10 CFR 20.202(a) or 10 CFR 34.33(a) during the calendar year.

[X] provided during the calendar year.

*Individual values exactly equal to the values separating exposure ranges shall be reported in the higher range.

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Attachment 2

NUMBER OF PERSONNEL AND MAN REMS BY WORK AND JOB FUNCTION - OYSTER CREEK

Work & Job Function	Number of Personnel *			Total Man-Rem		
	Station Employees	**Utility Employees	Contract Workers and Others	Station Employees	Utility Employees	Contract Workers and Others
Reactor Operations & Surveillance						
Maintenance Personnel	67	12	42	5.990	.192	11.746
Operating Personnel	37	1	0	2.341	.000	.000
Health Physics Personnel	11	0	24	1.059	.000	2.096
Supervisory Personnel	10	0	0	.735	.000	.000
Engineering Personnel	18	0	1	2.803	.000	.315
Routine Maintenance						
Maintenance Personnel	218	38	297	121.027	9.794	72.097
Operating Personnel	159	1	26	61.883	.015	1.574
Health Physics Personnel	58	0	68	24.968	.000	38.751
Supervisory Personnel	51	0	1	6.426	.000	.109
Engineering Personnel	68	1	38	6.609	.013	4.801
Inservice Inspection						
Maintenance Personnel	30	4	2	1.640	1.642	.015
Operating Personnel	7	0	1	1.282	.000	.016
Health Physics Personnel	4	0	9	.500	.000	.255
Supervisory Personnel	3	0	0	.217	.000	.000
Engineering Personnel	8	0	2	.592	.000	.260
Special Maintenance						
Maintenance Personnel	150	33	317	23.259	18.537	246.577
Operating Personnel	49	1	4	3.517	1.122	1.453
Health Physics Personnel	28	0	36	2.895	.000	4.654
Supervisory Personnel	15	0	1	.944	.000	.005
Engineering Personnel	17	0	7	2.020	.000	3.863
Waste Processing						
Maintenance Personnel	89	0	33	2.696	.000	11.794
Operating Personnel	17	0	2	1.324	.000	.018
Health Physics Personnel	15	0	8	1.030	.000	2.388
Supervisory Personnel	3	0	0	.166	.000	.000
Engineering Personnel	1	0	1	.006	.000	.196
Refueling						
Maintenance Personnel	1	0	4	.000	.000	.070
Operating Personnel	0	0	0	.000	.000	.000
Health Physics Personnel	0	0	0	.000	.000	.000
Supervisory Personnel	0	0	0	.000	.000	.000
Engineering Personnel	0	0	0	.000	.000	.000
TOTAL						
Maintenance Personnel	226	39	415	154.612	30.165	342.299
Operating Personnel	161	1	28	70.347	1.137	3.061
Health Physics Personnel	58	0	69	30.452	.000	48.144
Supervisory Personnel	52	0	1	8.488	.000	.114
Engineering Personnel	74	1	40	12.030	.013	9.435
Grand Total	571	41	553	275.929	31.315	403.053

*The individual personnel "Totals" do not necessarily reflect the sum of the personnel listed under each category due to the fact that personnel performed various functions during the year and may have been included in more than one "WORK & JOB FUNCTION."

**UTILITY EMPLOYEES - All GPU and JCP&L emplo ees not permanently assigned to Oyster Creek.

Oyster Creek (BWR) RG 1.16 '82

Oyster Creek (BU
20.407

SUGGESTED DRAFT FORM FOR THE REPORTING OF RECORDED
PERSONNEL WHOLE BODY EXPOSURES FOR CALENDAR YEAR 1982

Attachment 1

Licensee Reporting (Name & Address)	License No.
Oyster Creek N.G.S. Docket No. 50-219 P.O. Box 388 Forked River, New Jersey 08731	DPR-16

Annual Dose Ranges* (rem)	Number of Individuals in Each Range
No Measurable Exposure	480
Measurable Exposure Less Than 0.10	417
0.10 -- 0.25	163
0.25 -- 0.50	160
0.50 -- 0.75	138
0.75 -- 1	94
1 -- 2	195
2 -- 3	71
3 -- 4	28
4 -- 5	3
5 -- 6	1
6 -- 7	
7 -- 8	
8 -- 9	
9 -- 10	
10 -- 11	
11 -- 12	
12 +	

Total number of individuals reported 1750

The above information is submitted for the total number of individuals for whom personnel monitoring was (check one)

☐ required under 10 CFR 20.202(a) or 10 CFR 34.33(a) during the calendar year.

☒ provided during the calendar year.

*Individual values exactly equal to the values separating exposure ranges shall be reported in the higher range.

NUMBER OF PERSONNEL AND MAN REMS BY WORK AND JOB FUNCTION - OYSTER CREEK

ATTACHMENT 2

1983

Work & Job Function	Number of Personnel *			Total Man-Rem		
	Station Employees	**Utility Employees	Contract Workers and Others	Station Employees	Utility Employees	Contract Workers and Others
Reactor Operations & Surveillance						
Maintenance Personnel	104	35	328	10.943	1.232	31.901
Operating Personnel	111	1	5	13.533	.050	.510
Health Physics Personnel	14	0	7	1.010	.000	.230
Supervisory Personnel	29	0	0	1.778	.000	.000
Engineering Personnel	23	0	11	2.177	.000	2.848
Routine Maintenance						
Maintenance Personnel	197	46	1091	96.971	3.944	714.446
Operating Personnel	167	1	22	49.246	.220	3.537
Health Physics Personnel	58	0	136	59.408	.000	88.573
Supervisory Personnel	71	1	0	8.761	.044	.000
Engineering Personnel	60	0	35	4.510	.000	5.274
Inservice Inspection						
Maintenance Personnel	29	2	244	1.040	.000	177.000
Operating Personnel	20	0	1	4.411	.000	.090
Health Physics Personnel	8	0	13	.475	.000	.355
Supervisory Personnel	2	0	0	.000	.000	.000
Engineering Personnel	4	0	6	.375	.000	.863
Special Maintenance						
Maintenance Personnel	152	51	1321	51.531	17.764	793.379
Operating Personnel	94	1	10	14.124	.503	2.027
Health Physics Personnel	40	0	105	23.368	.000	43.085
Supervisory Personnel	32	1	0	3.696	.082	.000
Engineering Personnel	29	0	18	2.686	.000	3.537
Waste Processing						
Maintenance Personnel	80	1	152	2.512	.000	27.593
Operating Personnel	15	1	5	1.119	.005	1.149
Health Physics Personnel	22	0	29	1.952	.000	3.008
Supervisory Personnel	8	0	0	.482	.000	.000
Engineering Personnel	3	0	2	.095	.000	.155
Refueling						
Maintenance Personnel	82	5	50	13.763	.004	1.598
Operating Personnel	68	0	1	5.222	.000	.068
Health Physics Personnel	18	0	19	.767	.000	.945
Supervisory Personnel	14	0	0	1.797	.000	.000
Engineering Personnel	12	0	0	.673	.000	.000
TOTAL						
Maintenance Personnel	207	52	1533	176.760	22.944	1745.917
Operating Personnel	177	1	26	87.655	.778	7.381
Health Physics Personnel	60	0	137	86.990	.000	136.196
Supervisory Personnel	76	1	0	16.514	.126	.000
Engineering Personnel	74	0	39	10.516	.000	12.677
Grand Total	594	54	1735	378.435	23.848	1902.171

*The individual personnel "Totals" do not necessarily reflect the sum of the personnel listed under each category due to the fact that personnel performed various functions during the year and may have been included in more than one "WORK & JOB FUNCTION."

**UTILITY EMPLOYEES - All GPU and JCP&L employees not permanently assigned to Oyster Creek.

Oyster Creek (BWR)
RG 1.16

PERSONNEL WHOLE BODY EXPOSURES FOR CALENDAR YEAR 1983 20.407

ATTACHMENT 1

Licensee Reporting (Name & Address)	License No. DPR-16
Oyster Creek N.G.S. Docket No. 50-219 P. O. Box 388 Forked River, N. J. 08731	

Annual Dose Ranges* (rem)	Number of Individuals in Each Range
No Measurable Exposure	943
Measurable Exposure Less Than 0.10	441
0.10 -- 0.25	300
0.25 -- 0.50	365
0.50 -- 0.75	230
0.75 -- 1	155
1 -- 2	446
2 -- 3	210
3 -- 4	130
4 -- 5	26
5 -- 6	
6 -- 7	
7 -- 8	
8 -- 9	
9 -- 10	
10 -- 11	
11 -- 12	
12 +	

Total number of individuals reported 3246

The above information is submitted for the total number of individuals for whom personnel monitoring was (check one)

☐ required under 10 CFR 20.202(a) or 10 CFR 34.33(a) during the calendar year.

☒ provided during the calendar year.

*Individual values exactly equal to the values separating exposure ranges shall be reported in the higher range.

ENCLOSURE 2

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

SEP 03 1981

MEMORANDUM FOR: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

FROM: William E. Kreger, Assistant Director for Radiation Protection, DSI

SUBJECT: PRESS RELEASE ON OCCUPATIONAL RADIATION EXPOSURES IN 1980 FOR LWRs

The Environmental Policy Council (EPC) (Robert Alvarez) issued a press release on 9/2/81 on the issue of occupational radiation exposures in 1980 at LWRs. It quoted the data presented in the May 28, 1981 memorandum from Charles Hinson to me, which was attached to the Commission Information paper, "Unusually High Occupational Radiation Doses Reported For Power Reactors Operating in 1980" (SECY-81-517, August 28, 1981). As a result of the release, Public Affairs had me talk to Ed Roby of UP, and Joanne Omang of the Washington Post and Linda Coombs of RKO news service called me directly (I'm not sure all of these came through Public Affairs).

I made the following points:

1. The collective exposure increase is caused primarily by the need to backfit safety items, partly industry identified, or to repair steam generators.

2. The activities are pursued under the ALARA concept whereby individual exposures were both within regulatory (safe) limits and minimized by ALARA procedures and practices.

3. The individual exposure average did not go up significantly so that individual risk did not rise. Radiation worker risk is relatively low among industrial occupations.

4. The 3-10 cancers (54,000 person rem in 1980) used in the EPC release is reasonably accurate, but should be characterized as potential cancers, and, in accordance with NAS-NRC BEIR report, should not exclude zero cancers as a possible outcome of the exposures.

5. We would expect new plants coming on line to bring the average exposures down because they were designed with more "ALARA" features.

6. The exposures in older plants in 1982, after two years of backfit activities, should go back down to "normal" levels experienced in years prior to 1980. Industry is beginning to understand the buildup of activated

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2pp.

corrosion products (CRUD) and should soon be able to prevent the gradual increase in radiation levels in such plants, thus adding an additional control on the previously gradual rise in annual collective occupational radiation exposure per reactor at operating LWRs.

William E. Kreger

William E. Kreger, Assistant Director
for Radiation Protection
Division of Systems Integration

cc: RMattson
FCongel
DCollins
CHinson
JPouchard
SGagner
LHigginbotham
LJCunningham
KGoller
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FArsenault
WMills - RES
BDLiaw
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JRoe
GZech

Environmental Policy Institute
317 Pennsylvania Ave. S.E. Washington D.C. 20003
202/544-2600

ANALYSIS OF NRC DATA

ON NUCLEAR POWER PLANT WORKER EXPOSURES TO RADIATION

by Fred Millar and Bob Alvarez
September 1, 1981

Increases in Worker Exposures: "An All-Time High"

The most recent data compiled by the U.S. Nuclear Regulatory Commission (NRC) reveals an alarming increase of 33% in the average radiation exposures to the total workforce in U.S. nuclear power plants between 1979 and 1980. While the total number of commercial operating nuclear power plants in 1980 rose by only one new plant, from 67 to 68, the total worker radiation exposures for all operating nuclear plants increased from 39,759 person-rems in 1979 to 53,797 person-rems in 1980, an increase of 35%.* "The average yearly exposure for all commercial nuclear reactors," according to the latest NRC report, dated May 28, 1981, "is at an all-time high of 791 person-rems per reactor."

The big 1980 increase was no flash in the pan. Nuclear plant worker radiation doses have been rising steeply for the last three years. The 1979 average dose of 593 person-rems per reactor was itself a 20% rise from the year before. In addition, the 1979-1980 rise of 35% in total collective dose followed a similar rise of 25% between 1978-1979. The data thus provide persuasive refutation to comments by industry and NRC officials who have repeatedly suggested that some particular problem in the nuclear reactors has been given a "one-shot" fix requiring extraordinary radiation doses to workers, but that similar steep increases will not continue to occur.

NRC collects data annually from nuclear plant operators in two different ways. Data from the most recent reports show that the long-range trend in

---

* When radiation doses are measured for large populations, like reactor workers, the unit person-rem is used. This measure is also used in estimating the risk of dying from radiation-induced cancer. Person-rems are derived by multiplying the total number of people exposed times their average dose in rems. Or it can be the actual sum of all doses received. For example, 10,000 person-rems is a dose received by 5,000 people exposed to 2 rems each; or by 10,000 people exposed to one rem.

~~8806200105~~ 10 pp.

U.S. nuclear reactor radiation exposures to their workforce has been a rise of 400% over ten years, from an average of less than 200 person-rems per reactor in 1969 to nearly 800 person-rems per reactor in 1980.

This high level of total worker exposures was not anticipated by those who have had to calculate the possible costs and benefits of nuclear power generation.

As we shall see below, the consequences of the large increases in terms of future cancers, deaths, and genetic damage are extremely serious. The continued exposures at unanticipated high levels confront the NRC with a clear problem in terms of its regulatory responsibility for health and safety.

The Results of Worker Radiation Exposures: Cancers, Deaths, Genetic Damage

The long-term implications of the steep rise in workers' total radiation exposure are sobering, given the recent scientific estimates on the risks of low-level radiation exposure. Even the most conservative estimates give reason for grave concern.

In the case of reactor workers a total of 53,797 person-rems were accumulated in 1980, representing a 33 percent increase over the 39,759 person-rems accumulated in 1979. The new NRC documents analyzed here do not have a breakdown of how many workers were exposed or their individual exposures.

Cancers which have been shown to be initiated by radiation include leukemia, bone marrow, pancreas, lung, large intestine, thyroid, liver and breast. Scientists' estimates of the risk of dying from radiation-induced cancer vary widely, as the table on the next page suggests.

In terms of the risk of genetic damage, the risks to workers' children and future generations are significant. According to the National Academy of Sciences BEIR I and III reports, if 50,000 person-rems accumulate each year among reactor workers for 20 years, there will be as many as 3,000 excess human heredity disorders for every 100,000 progeny. Taking these estimates further and assuming that in ten generations no intermarriage with like-damaged individuals takes place, the 50,000 person-rems of radiation would

ESTIMATES OF RADIATION-INDUCED CANCER DEATHS FOR 1980 REACTOR WORKERS*

BEIR I (1972)	2-4 cancer deaths	50-80 mil. person-rems[a]
BEIR III (1979)	3-15 cancer deaths	70-353 per mil. person-rems[a]
BEIR III (1980)	3-10 cancer deaths	77-226 per mil. person-rems[a]
UNSCEAR (1977)	5 cancer deaths	100 per mil. person-rems[b]
Radford (1981)	10-30 cancer deaths	200-600 per mil. person-rems[c]
Gofman (1977)	200 cancer deaths	3771 per mil. person-rems[d]
Morgan (1979)	350 cancer deaths	7000 per mil. person-rems[e]

---

* The 53,797 person-rems reported by the NRC has been rounded off to 50,000

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a) National Academy of Sciences Advisory Committee on the Biological Effects of Ionizing Radiation (BEIR Committee), reports for 1972, 1979 and 1980.

b) United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) 1977.

c) Radford, E., Science, August 7, 1981.

d) Gofman, J.W., Health Physics, July 1981.

e) Morgan, K.Z., Bulletin of Atomic Scientists, September 1979. (Morgan's estimates, unlike the above, are based on the Hanford data of Mancuso, Stewart, and Kneale, published in Health Physics, November 1977).

ultimately produce as many as 1.5 million living children with heredity disorders and 4,600 recognized miscarriages in excess of the normal number.

"Used-up Workers" Outpace Electricity Production

Are the huge increases in nuclear plant worker exposures matched by increases in electricity produced? Not by a long shot. Data from an NRC study released in March 1981 (NUREG-0713) show that during the period 1969-1979, the number of U.S. operating reactors increased 950%, from 7 to 67 reactors. Total doses to workers, however, rose four times as fast, nearly 3200%, from 1247 person-rems in 1969 to 39,759 person-rems in 1979. Total electricity generated during the period did not keep pace with worker exposures; the former rose 2321%, from 1289 megawatt-years in 1969 to 29,920 megawatt-years in 1979.

Nuclear plants each have "used up" more and more radiation workers; the average number of radiation workers exposed in a single nuclear plant in 1969 was 145, whereas in 1979 the average was 1010 workers exposed, a rise of 696%.

The reported average dose for individual workers, which is regulated by the NRC, has been kept well within regulatory limits, in fact has ranged from a high of 1.03 rems in 1969 to .73 rems in 1979. This level has been accomplished, however, by the using up of a total of 64,073 radiation workers in U.S. nuclear plants in 1979 compared with 744 in 1969, a rise of 8600 %. The total amount of radiation to the workforce is not regulated by the NRC or any other agency, unlike the amount of a nuclear plant's radiation releases to the environment, which is regulated by limits set by U.S. EPA.

Even so, official estimates of average radiation doses to individual workers have over time been proven seriously below the actual experience of nuclear workers. In 1972 the EPA predicted that the greatest increase in occupational radiation exposures would not be from the rapidly expanding medical applications, but from industrial uses, particularly nuclear power plants. EPA suggested that the average annual dose to individual reactor workers by the year 2000 would not exceed .225 rem. By 1979 the NRC reported the average annaul individual exposure to be .680 rems, more than three times the EPA prediction for the end of the century.

What Explains the Recent Large Worker Radiation Exposure Increases?

There is no one answer, but some educated guesses can be made. In the first place, NRC data reveals that one major type of nuclear reactor is much hotter overall for its workers than the other major type.

Boiling-water reactors (BWRs) exposed their workforce in 1980 to nearly double the average yearly exposures compared with pressurized-water reactors (PWRs). The 1979-1980 increase in average exposures per boiling-water reactor was 55%, from 733 to 1136, while the pressurized water reactor increase was 13%, from 510 to 578 person-rems. Understanding the exposure differences requires a closer look at what is going on at the 68 operating U.S. commercial reactors: many BWRs have needed several specific major repair jobs requiring workforce exposures to many person-rems of radiation.

Some Plants Are "Hotter" Than Others: Frequent Repairs Needed

"It should be noted," stated a 1981 NRC report, "that there are significant differences in nuclear plant designs, even between plants of a given type." Some individual plants have been much "hotter" in radiation exposures (in person-rems) for their workers than others. The hottest of 30 pressurized water reactors (and their 1979/1980 exposure totals) were: San Onofre (150/2400), Surry (1800/1950), Robinson (1200/1850), Connecticut Yankee (1150/1350), Haddam Neck and Turkey Point (830/820). The hottest of 18 boiling-water reactors (and their 1979/1980 exposure totals) were: Pilgrim (1000/3650), Quad Cities (1100/2400), Millstone (1800/2160), Fitzpatrick (850/2050), Brunswick (1300/1950), and Oyster Creek (470/1730).

In all of the hottest PWRs with the exception of Connecticut Yankee, abnormally high 1979 and 1980 radiation exposures can almost certainly be attributed to the expensive, lengthy, and extraordinary inspection and repair operations required by the premature corrosion and leakage of the radioactive steam generators, a generic problem which also afflicts nearly all PWRs in the U.S. and Europe. The replacement of only one plant's failed steam generators, at the two Surry reactors in Virginia, cost hundreds of workers in 1978-79 a total of over 2000 person-rems.

The other "hottest" PWRs have undergone similar costly large scale repairs or the leaks in their extremely radioactive steam generator tubes have been frequently "plugged" at great cost in worker exposures. Recently developed remote "robot" equipment may soon be able to reduce worker exposures somewhat in the major repair jobs which many nuclear plants will eventually have to undergo, but repair techniques developed in the lab for steam generator problems have not always worked in actual on-site repair operations (e.g., tube welding in the 1980-81 San Onofre "sleeving").

Major repairs on such failed components and safety-related modifications required by NRC have clearly assumed a greater and greater importance for exposures to nuclear workers. One category of NRC worker exposure data, "Special Maintenance", accounted for only 19% of the annual collective radiation dose in 1975, but has doubled to around 40% in recent years. NRC does not, however, require nuclear utilities to submit detailed regular reports on which specific repair or maintenance jobs led to large worker exposures.

NRC officials can only guess, therefore, about what factors account for the large increases in worker radiation doses that numerous nuclear plants of both types are experiencing. The 1981 NRC report NUREG-0731 says:

> Usually, when a plant reports a large annual collective dose, and a large man-rems to megawatt-year ratio as well, it indicates that extensive maintenance or modifications were undertaken during the year. Also, numerous plants reported increases in their collective doses as a result of the actions that the NRC required operating reactors to take because of the Three Mile Island 2 accident and NRC's concern for seismic design deficiencies in safety-related piping. And again in 1978, several PWRs reported substantial collective doses associated with the inspection and repair of steam generator tubes. Some major activities at BWRs that accounted for a portion of the 1979 collective dose were inspection and maintenance of shock suppressors, and maintenance and repair of various valves.

Several NRC officials, however, report that safety-related modifications required from the "lessons learned" at Three Mile Island have not yet begun at most nuclear plants, so that these NRC requirements are not yet a significant explanation for increased worker doses. (In general, older nuclear plants are hotter for their workers because more of the reactor piping and other equipment has been irradiated during operation. But the recent

NRC data does not allow an analysis of exactly how much hotter the older plants are.)

The "ALARA" Philosophy

Without an absolute regulatory limit on total exposures to their nuclear workers, the nuclear industry is constrained only by what is termed the "ALARA" philosophy. "As low as reasonably achievable" radiation exposure to workers is the goal towards which NRC pushes the nuclear utilities. Despite ten years of nuclear reactor experience, however, the nuclear industry has not improved its ability to reduce the total worker radiation exposures measured against the amounts of electricity produced. The average ratio over the eleven-year period 1969-1979 has hovered around a level of 1.3 person-rems per megawatt-year. The 1979 figure was 1.3, up from a ten-year low in 1978 of 1.0 person-rems per reactor year. Some NRC officials say that the "more progressive" nuclear plants are compiling books on history of various repair jobs in different plants, in order to learn how worker exposures can be reduced.

The key question is obvious: what does "reasonably achievable" mean? Shielding workers from radiation can be a very expensive problem for nuclear management. The NRC has not required nuclear utilities to report how much money they are spending to reduce worker exposures to "ALARA", nor has NRC made a rule as to how much a utility is required to spend in order to reduce a given amount of such exposures. Rather than strict cost-benefit analysis, utilities use "common-sense" approaches as to what works to reduce exposures, according to NRC. NRC does not, moreover, independently monitor the accuracy of utility-reported radiation exposures, although a more vigorous NRC effort in this area is being contemplated.

A significant number of nuclear plant workers are transient workers, about 3200 each year who worked at from two to nine different nuclear facilities during 1977, 1978 and 1979. Only a small number of nuclear workers (27 in 1977, 9 in 1978, 21 in 1979) received reported exposures above the allowed quarterly limits. NRC has only "limited" data on the "career doses" of nuclear workers, since it collects data only for employees "terminating" with a nuclear plant, not for ongoing workers.

Those NRC officials charged with maintaining worker radiation exposures "ALARA" seem to feel beleaguered by the recent onrush of high radiation-impact demands in nuclear plant operation. And the future looks grim: a NIOSH report prepared by health physicist David Scott, dated March 30, 1980, suggests that the trend of increasing person-rem exposure will be dramatic. Scott projects current trends and calculates that within the next 7 years 105,000 reactor workers may annually be receiving measurable radiation doses.

How Much Radiation, And For Whom?

Early estimates of how much total radiation nuclear plant workers would get were very low. NRC officials now report that their most recent Environmental Impact Statements for newly-licensed nuclear plants contain much higher estimates of future worker exposures, reflecting the regrettable experience of recent years.

How much total radiation exposure to a workforce should be tolerated in the centralized production of electricity? This seems to be a question no one has asked in any effective way. Nuclear plant managers report that their main question is whether they can keep the plant operating. Recent repair operations such as the Surry steam generator replacement operation, requiring hundreds of workers and record levels of total exposure (2020 person-rems for this one repair operation, despite elaborate dose-reduction techniques), seem to indicate that total worker exposures are not considered to have any foreseeable limit from the utilities' current cost-benefit perspective. A possible limit on the numbers of some skilled craftspeople might be the most compelling factor in this area.

As long as major repair operations are required for flaws in highly radioactive nuclear reactor piping and other components, "nothing much can be done" to reduce total workforce exposures to previously anticipated levels, according to NRC officials.

Finally, just one of the dilemmas in nuclear power safety is that when nuclear plants implement measures to control radiation released to the public and the environment surrounding the plant, more radioactive material is kept inside the plant, thus to some extent shifting the radiation burden to nuclear plant workers. This is not, however, a major contributor to the workers' overall exposures, the majority of which is from increased radioactivity in permanent nuclear plant components.

Resources

Our brief analysis of occupational radiation exposures is not a comprehensive survey of the problem. The following resources contain valuable data and analysis that complement this EPI study.

NUREG - 0713, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors, 1979: Annual Report." B.G. Brooks, Office of Management and Program Analysis, U.S. Nuclear Regulatory Commission. Latest in a series of annual reports including plant-by-plant data (1978 version was NUREG-0594). Available for about $5.00 from National Technical Information Service, Springfield, VA 22161.

"Preliminary LWR Exposure Data for 1980", Memo from Charles Hinson, Radiological Assessment Branch to William E. Kreger, Assistant Director for Radiation Protection, U.S. Nuclear Regulatory Commission, dated May 28, 1981. 10 pp. with charts showing historical trends. Xerox available from Environmental Policy Center, 317 Pennsylvania Avenue, S.E., Washington, D.C. 20003.

"A Review of Radiation Protection Principles and Practices and the Potential for Worker Exposure to Radiation: A Research Report for the National Institute for Occupational Safety and Health", David M. Scott, Health Physicist, Rockville, Md., March 30, 1980. 122 pp. An excellent discussion, especially of the Three-Mile Island accident's implications for worker exposures. Good critique of current federal regulatory activity.

"Atomic Worker's Guide to the Most Unsafe Atomic Power Plants in 1977". Public Citizen Health Research Group, Dr. Sidney Wolfe, Dept. 411, 2000 P Street, N.W., Washington, D.C. 20036, (202)872-0320. $2.00 each. Somewhat dated, but a valuable discussion of the overall situation which goes beyond this brief analysis. 23 pp.

"Plutonium and the Workplace: An Assessment of Health and Safety Procedures For Workers at the Kerr/McGee Plutonium Fuel Fabrication Facility," by Kitty Tucker and Elli Walters, March 1979, p. 103. A detailed analysis of utilizing official documents and worker interviews of worker health and safety at a commercial plutonium fuel fabrication facility. A timely report in the face of renewed support by the Reagan Administration for the commercial development of plutonium fuels. Available from the Environmental Policy Institute.

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MEMORANDUM FOR: R. Wayne Houston, Assistant Director
for Radiation Protection, DSI

FROM: Frank J. Congel, Chief
Radiological Assessment Branch, DSI

SUBJECT: PRELIMINARY LWR OCCUPATIONAL DOSE DATA FOR 1981

Attached is a preliminary compilation and analysis of occupational radiation doses reported from 70 light water cooled nuclear reactors (LWRs) for the year 1981. The information in this memorandum was derived from reports submitted to the Commission in accordance with 10 CFR Part 20.407. Two PWR units, Arkansas 2 and North Anna 2, completed their first full year of commercial operation in 1981 and are included in this year's summary for the first time. In addition, this summary includes four units (Dresden 1, Humboldt Bay, Indian Point 1, and Three Mile Island 2) that are currently shutdown for an indefinite period of time. These units have been retained in this summary since they are still licensed and dose is still accumulate to maintain them.

The total collective dose reported for 1981 was 54,555 person-rems, an increase of 1.3 percent over the 1980 figure of 53,797 person-rems. This total gives an averag of 779 person-rems per unit, which is slightly lower than the 791 person-rems per unit reported for 1980. This leveling off of the average person-rems per unit follows two years of increases during which the average dose per unit rose from 497 person-rems in 1978 to 791 person-rems in 1980.

In 1981 the average dose for PWR units was 656 person-rems, a 13% increase over the 1980 average of 578 person-rems. The 1981 average BWR dose of 988 person-rems per unit is a 13% decrease from the 1980 average of 1136 person-rems. Seventeen plants reported collective dose reductions 30% or more. Six of these seventeen pla reported 1981 doses per unit that were less than half of their 1980 doses. None of these six plants had a major refueling outage in 1981. For the eighth consecutive year, the average annual dose per unit for BWR's remained higher than the PWR avera Figure 1 shows the trends in average yearly LWR doses from 1969 to 1981. Figure 2 breaks these doses down to BWR and PWR units for the same time period. Table 1 presents the computed person-rems accumulated at each LWR plant in 1981. Figures 3 4a and 4b give the total doses reported for each plant from 1979 thru 1981.

In an effort to obtain background information on the collective dose reported by the plants, the staff had informal telephone conversations with the radiation prote staff of several plants. Attention was given to plants whose reported collective doses had shown significant changes, either increasing or decreasing, between 1980 and 1981. We asked the licensees' staff to identify the major dose intensive jobs performed at their plants in 1981. The licensees' staff were also asked to identif

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a cause for the significant change in dose accumulated at their plants.

On the basis of these calls, no item could be singled out as a cause for the significantly increased doses. Each plant contacted implements its own method for categorizing plant activities. Although correlating these activities to trends in dose is difficult, some similarities in the responses can be seen. For BWR's the licensees' staff stated that torus modifications contributed significantly to their 1981 doses. Other plants, both BWRs and PWRs, singled out in-service inspections a plant modification (such as pipe hangars, snubbers, fire protection, and post-accid sampling) as significant contributors. The staff at most PWRs also stated that an increasing amount of steam generator work (including eddy current testing and tube plugging) contributed to their dose increases.

The most frequent reason given for the observed decreases in dose from 1980 to 1981 was that the plant did not have a major refueling or maintenance outage in 1981. One individual contacted did state that this particular plant had finished NRC-mandated plant modifications in 1980, resulting in lower 1981 doses. Several of the licensees' staff members, whose plants had no refueling outage in 1981, said they anticipated increases in 1982 doses since they still have several major modificatic and inspections (such as the torus mods and pipe hangar inspections) to complete.

This information was completed by R. Pedersen and C. Hinson, RPS, RAB.

Frank J. Congel

Frank J. Congel, Chief
Radiological Assessment Branch
Division of Systems Integration

Attachment:
As Stated

TABLE 1

PLANT NAME	TYPE	AGE	20.407	(AG WL)
Arkansas I, II (N)	P	7 / 1	1102	(890)
Beaver Valley I	P	5	229	(146)
Big Rock Point	B	13	160*	(134)
Browns Ferry I, II, III	B	7 / 6 / 4	2469	( )
Brunswick I, II	B	6 / 4	2729	(2558)
Calvert Cliffs I, II	P	6 / 4	607	(538)
Cook I, II	P	6 / 3	656	(604)
Cooper Station	B	7	579	(544)
Crystal River III	P	4	408	(362)
Davis Besse I	P	4	68	(85)
Dresden I, II, III	B	21 / 11 / 10	2802	(2302)
Duane Arnold	B	6	790	(839)
Farley I	P	4	512	(497)
Fitzpatrick	B	6	1425	(1364)
Fort Calhoun I	P	8	458	(450)
Ginna	P	11	655	(614)
Haddam Neck (Connecticut Yankee)	P	13	1099	(1073)
Hatch I + II	B	6 / 2	1337	(1294)
Humboldt Bay	B	18	9	( )
Indian Point I, II	P	19 / 8	2731	(2633)
Indian Point III	P	5	371	(405)
Kewaunee	P	7	141	(127)
LaCrosse	B	12	123	(116)
Maine Yankee	P	9	424	(281)
Millstone I	B	10	1496	(1399)
Millstone II	P	6	531	(497)
Monticello	B	10	1042	(991)
Nine Mile Pt	B	12	1592	(1588)
North Anna I, II (N)	P	3 / 1	680	(777)
Oconee I, II, III	P	8 / 7 / 7	1302	(1364)
[illegible]	B	12	917	(639)

PLANT NAME	TYPE	AGE
Palisades	P	10
Peach Bottom II, III	B	7 / 7
Pilgrim	B	9
Point Beach I, II	P	11 / 9
Prairie Island I, II	P	8 / 7
Quad Cities I, II	B	8 / 8
Rancho Seco I	P	6
Robinson II	P	10
Salem I	P	4
San Onofre I	P	13
St. Lucie I	P	5
Surry I, II	P	9 / 8
Three Mile Island I, II	P	7 / 3
Trojan	P	5
Turkey Point III, IV	P	7 / 8
Vermont Yankee	B	9
Yankee Rowe	P	15
Zion I, II	P	8 / 7

REACTOR TYPE	NO.	20.407 TOTAL PERSON-REMS	2C A PERSO
PWR	44	28865	
BWR	26	25690	
LWR	70	54555	

FIGURE 1

AVERAGE PERSON - REMS per YEAR
(LWR's)

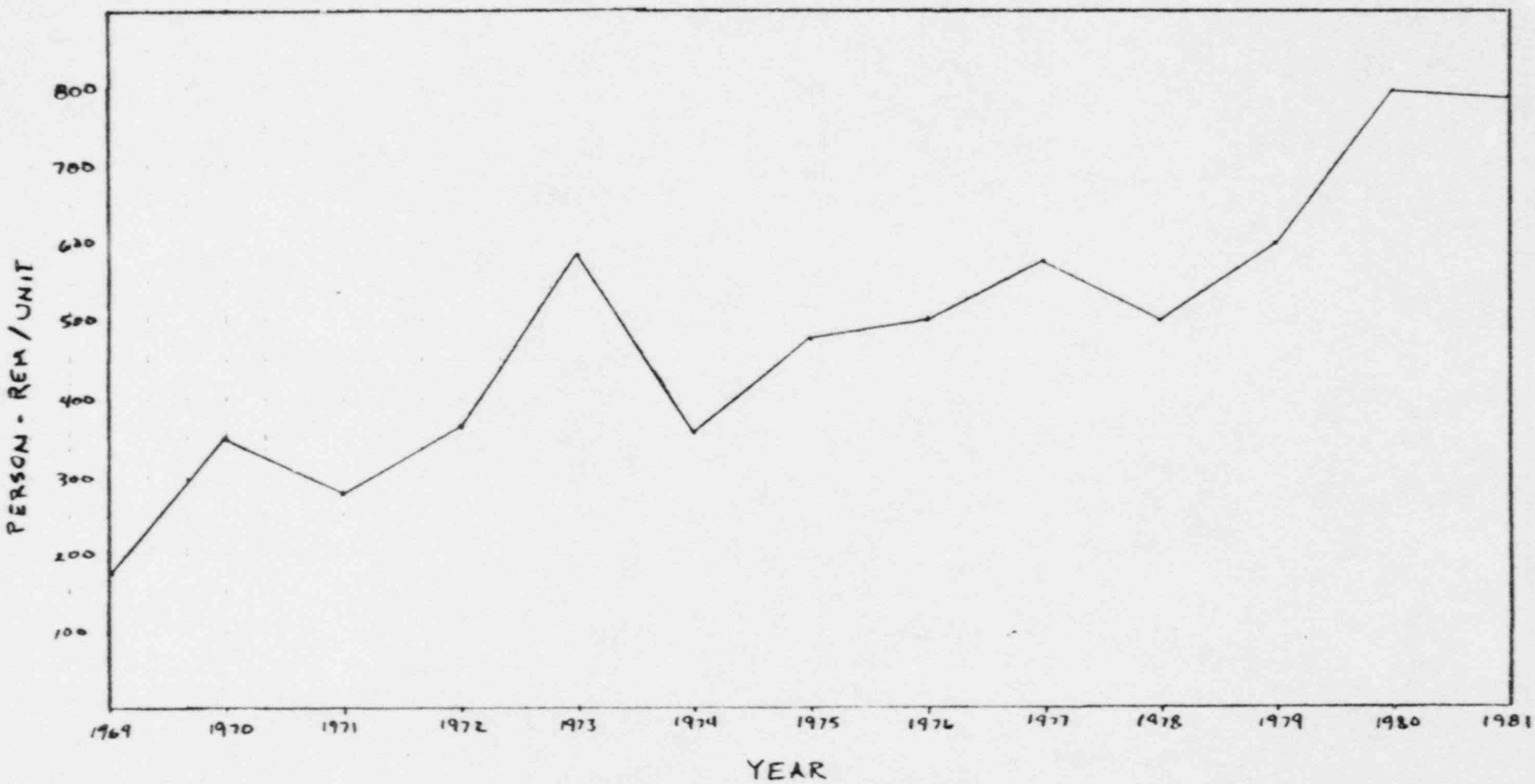
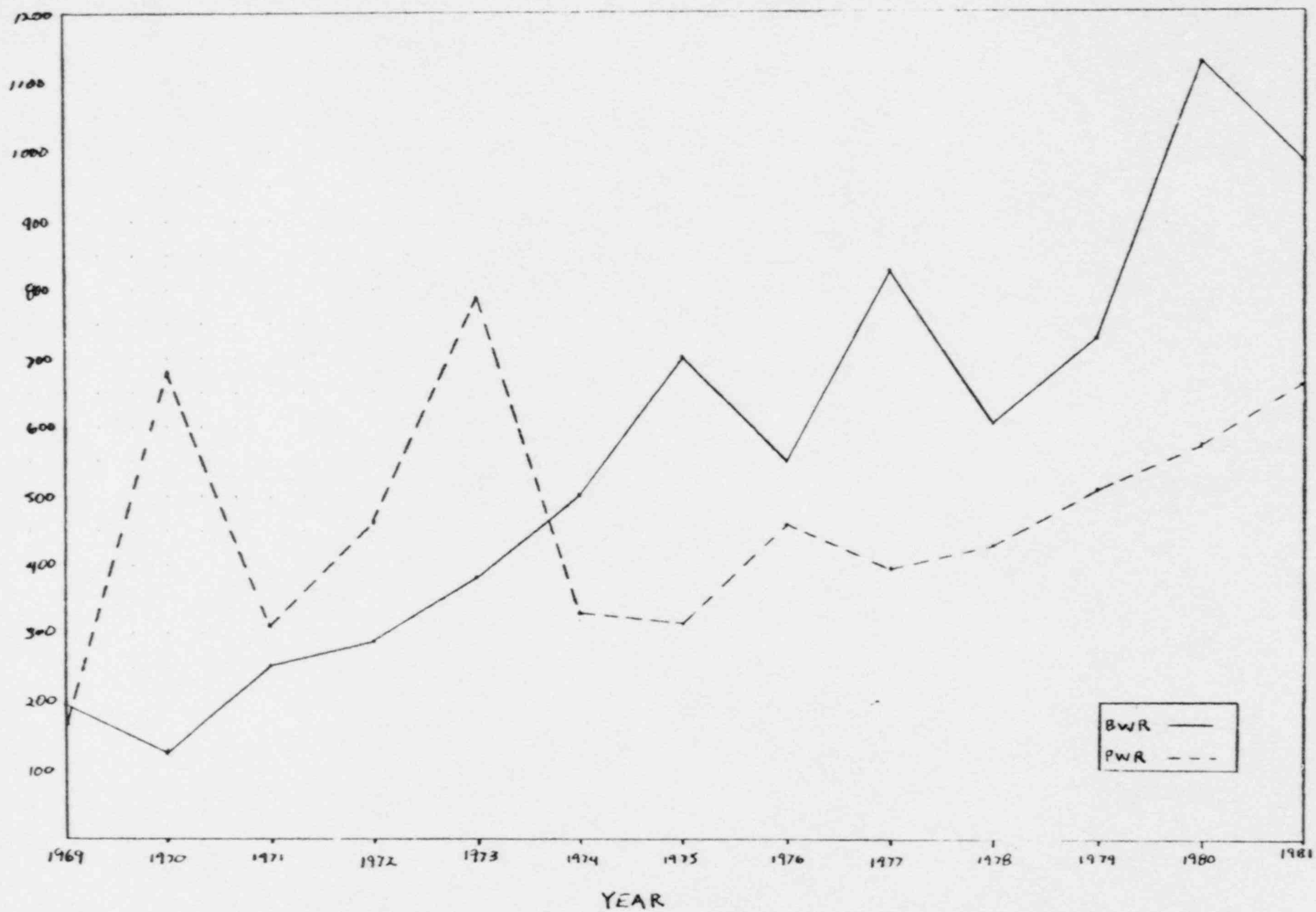


FIGURE 2

AVERAGE PERSON-REMS per YEAR
(BWR's and PWR's)



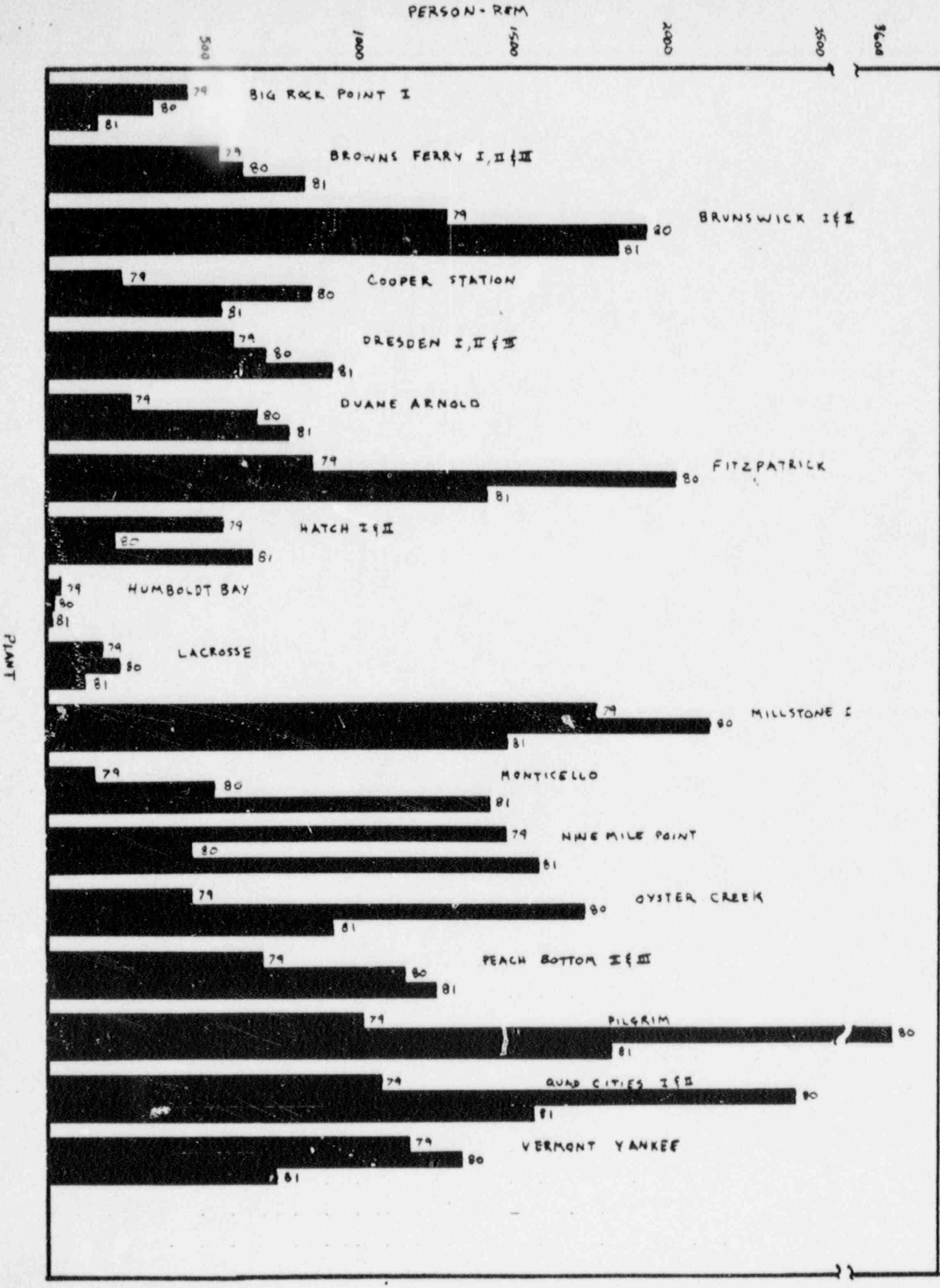


FIGURE 3 BWR PERSON-REM/UNIT 1979-1981

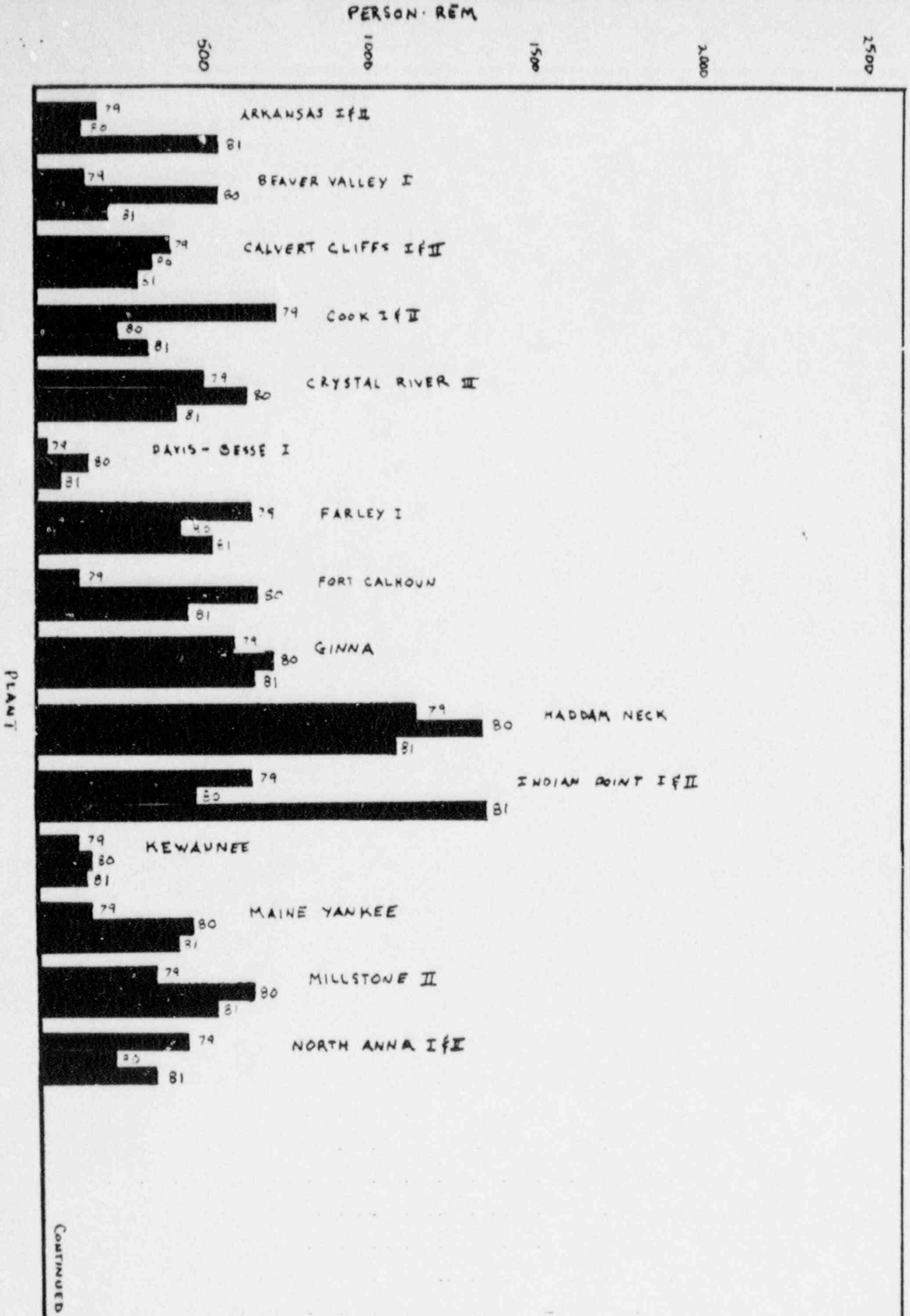


FIGURE 4a. PWR PERSON-REMS/UNIT 1979-1981

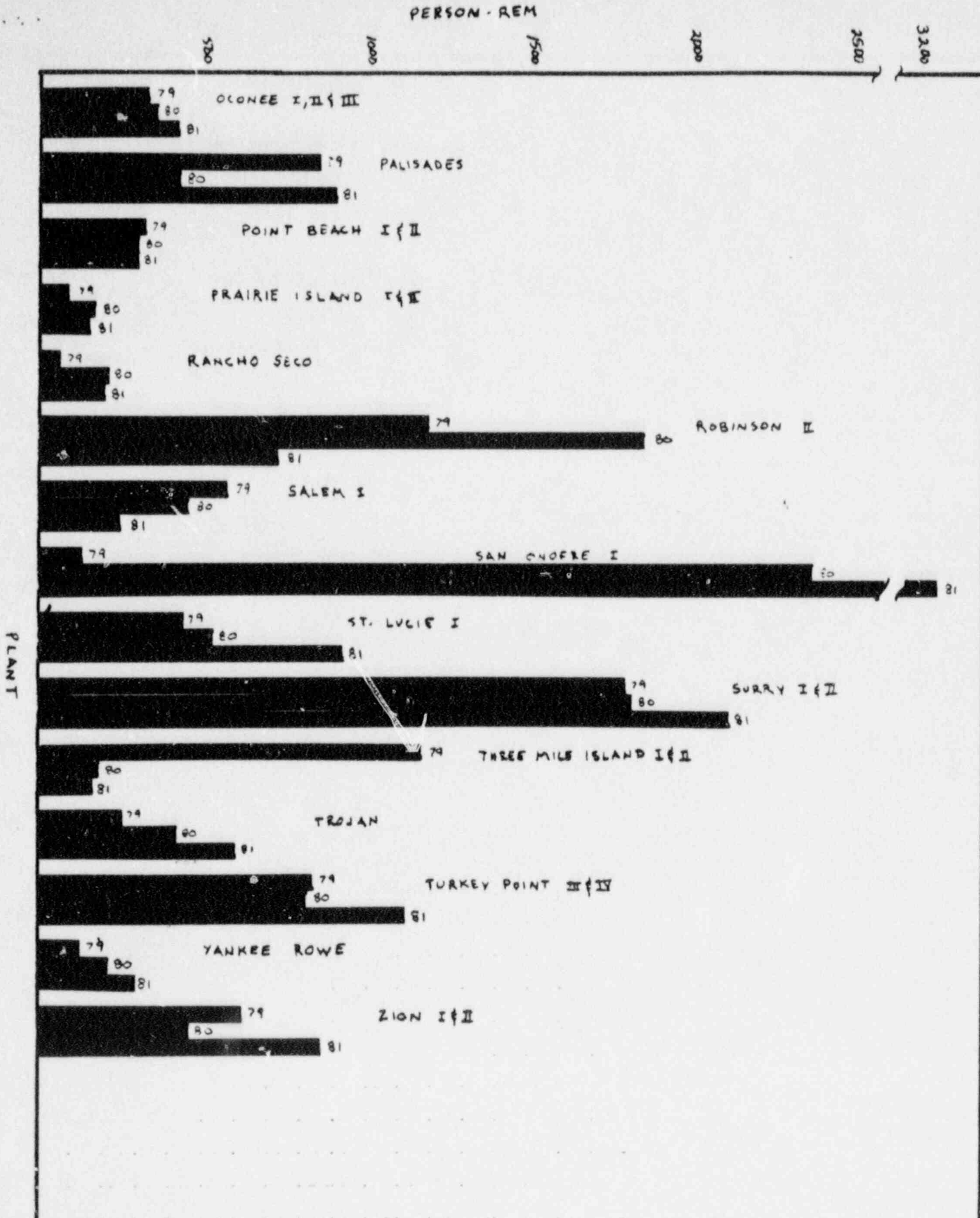


FIGURE 9b. PWR PERSON-REMS/UNIT 1979-1981

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August 25, 1981

MEMORANDUM FOR: William J. Dircks
Executive Director for Operations

FROM: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

SUBJECT: INFORMATION PAPER ON OCCUPATIONAL RADIATION DOSES FOR 1980

The attached Commission Information Paper describes a recent finding that 1980 occupational radiation exposures at some BWR plants showed significant increases over previous years. The Commission has previously been interested in the gradual increase in such exposures. Recently, an ACRS subcommittee, in a meeting on July 24, 1981 on Fermi 2, developed an interest in possible occupational health impacts of mandated safety improvements. As is mentioned in the paper, the NRR staff is taking steps to include this consideration in evaluation of safety feature backfits.

Original Signed by
H. R. Denton

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Attachment:
Proposed Information Paper

cc: EGCase
RJMattson
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUN 1 9 1981

MEMORANDUM FOR: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

THRU: Roger J. Mattson, Director
Division of Systems Integration, NRR

FROM: William E. Kreger, Assistant Director
for Radiation Protection, DSI

SUBJECT: UNUSUALLY HIGH OCCUPATIONAL DOSES REPORTED FOR POWER REACTORS OPERATING IN 1980

The purpose of this memorandum is to inform you further regarding some significant increases in total person-rem doses to reactor plant workers during calendar year 1980, relative to prior years.

RAB staff has completed a preliminary summary of the 1980 occupational radiation exposure data, submitted by licensees in accordance with 10 CFR Part 20.407 and R.G. 1.16. Enclosure "A", a C. Hinson to W. Kreger memo of May 28, 1981, summarizes the extent of the observed increases. You have received a copy of Enclosure "A".

Subsequent to our receipt of the data, the staff has had informal telephone conversations with plant radiation protection managers (RPM) at eight of the plants which experienced the largest observed increases (principally BWRs). In these conversations the RPM's have indicated that they feel that about 35% of total plant exposures during 1980 may have resulted from NRC-mandated activities, and that similar increases may be expected at a number of plants at which such NRC-mandated activities have not yet been completed. The activities they identified were seismic hanger inspections and changes, snubber corrections and masonry wall modifications that were directed by bulletins 79-02, 79-14 and 80-11. They also called out feedwater piping clad removal, and other torus and drywell changes.

In contrast to what we were told in the above conversations about how the work came about, James M. Smith, Jr. of General Electric Company, in a phone conversation with me characterized the major additional exposures at BWRs as being due to modification of the Mark I toruses, and replacing certain stainless steel components that showed intergranular stress corrosion cracking with 316 stainless steel. Although I&E bulletins have been issued regarding some of these matters, which would make them appear to be NRC mandated, Mr. Smith felt they were actually G.E. identified deficiencies and fixes. He believes that these special work efforts will result in significant future reduction of collective radiation exposure in those affected plants. He further indicated that the BWR 6's with Mark II containments will not have the problems indicated above, and should be able to operate at about 300 person-rems per year.

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As part of the conversation, the question of crud was discussed. Smith indicated that recirculating pipe dose rates seem to level off at 400 mrem/hr at 6 years or so, rather than continuing to rise indefinitely. He believes there is now enough information on how to control feedwater quality to control a potential continued buildup of crud levels. He stated that much of the dose-causing work discussed above was done at relatively low dose rates, but took many man hours (e.g., Millstone torus and suppression pool work took 42,000 man hours at about 9 mr/hr).

Smith projects that there will be about 2 years of these significant occupational radiation exposure increases at older BWRs but then doses will return to normal (i.e., at about 700 person-rems per year), or better.

Although our quantitative information on activities causing power plant exposures is limited, we have been concerned for some time about NRC-mandated activities that have contributed somewhat to the increased 1980 occupational doses. The process of backfitting safety requirements on operating plants has not necessarily considered competing risks, such as occupational radiation exposure, alongside the benefits associated with NRC-mandated actions. Even in establishing safety requirements at the CP and OL licensing stages, the staff has not had a uniformly effective mechanism for weighing increased safety (benefit) against possible increased exposure (cost) of such safety practices.

Enclosure "B" describes a staff developed risk comparison system which has been applied to requests by licensees for relief from requirements for inservice inspection and inservice testing. Such a system provides guidance for development of mechanisms to be more broadly applicable.

RAB plans to proceed, in conjunction with DL and DST, in considering further development of staff mechanisms to assure that risk-related considerations are taken into account when future NRC-mandated safety actions are contemplated. This staff activity will not take place at the expense of licensing commitments and schedules. However, we believe it to be an appropriate action related to operating reactors, since many of the new requirements were mandated as part of NUREGs 0600 and 0737.

William E. Kreger

William E. Kreger, Assistant Director
for Radiation Protection
Division of Systems Integration

Enclosures:
As Stated

cc: See next page

cc: E. Case
R. Mattson
T. Murley
M. Ernst
D. Collins
R. Alexander
E. Conti
J. Cunningham
R. Cunningham
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RPS Staff

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON D C 20555

MAY 2 8 1981

MEMORANDUM FOR: William E. Kreger, Assistant Director
for Radiation Protection, DSI

THRU: Douglas M. Collins, Leader
Radiation Protection Section, DSI

FROM: Charles S. Hinson
Radiological Assessment Branch, DSI

SUBJECT: PRELIMINARY LWR EXPOSURE DATA FOR 1980

Attached is a preliminary compilation and analysis of occupational radiation exposures at operating light water cooled nuclear power reactors (LWR's) for the year 1980. This information was derived from reports submitted to the United States Nuclear Regulatory Commission in accordance with Part 20.407 of Title 10, Chapter 1, Code of Federal Regulations (10 CFR Part 20.407) and Regulatory Guide 1.16.

One additional LWR completed a full year of commercial operation for the first time in 1980 (only LWR's that had been in commercial operation for at least one full year as of December 31, 1980, are included in this compilation). This single new operating plant, Hatch II (BWR), increased the number of plants included in this year's compilation to 68. This new unit is indicated in the compilation table by a (N).

The number of operating BWR's increased from 25 to 26 in this year's compilation. The yearly average exposure per reactor for BWR's in 1980 was 1136 person-rems. This represents a 55 percent increase over the 1979 average of 733 person-rems/reactor.

The yearly average exposure per reactor for the 42 operating PWR's in 1980 was 578 person-rems. This represents a 13 percent increase over the 1979 average of 510 person-rems/reactor.

The overall average exposure per reactor for all LWR's increased 33 percent from 593 person-rems in 1979 to 791 person-rems in 1980. The attached exposure compilation table include a breakdown of the person-rems received at each of the LWR's included in the above compilation for 1980. This table lists the exposure figures which were submitted by the licensees in response to the requirements of 10 CFR Part 20.407 and Regulatory Guide 1.16 (R.G. 1.16 data shown in parenthesis). The data quoted above and used in the attached figures is from the 10 CFR Part 20.407 data.

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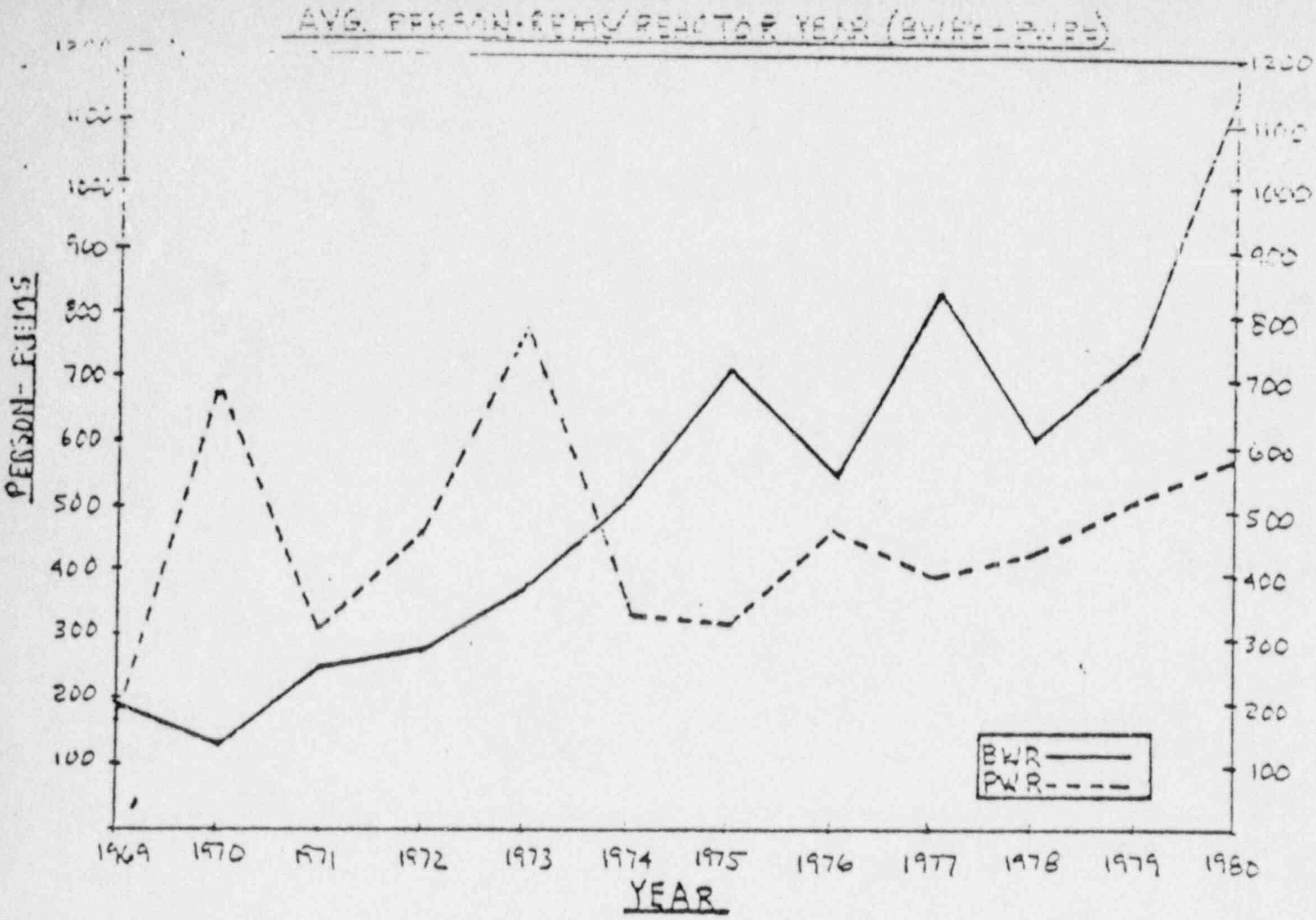
PLANT NAME	PLANT TYPE	AGE	EXPOSURE 20,407 (1976)
Arkansas I	P	6	342 (263)
Beaver Valley I	P	4	553 (496)
Big Rock Point	B	12	354 (368)
Brown's Ferry I, II, III	B	6, 5	1826 (1266)
Brunswick I, II	B	5, 3	3370 (3664)
Calvert Cliffs I, II	P	5, 3	677 (640)
Cook I, II	P	5, 2	493 (450)
Cooper Station	B	6	859 (820)
Crystal River III	P	3	625 (598)
Davis Besse I	P	3	154 (279)
Dresden I, II, III	B	20, 10, 9	2105 (2028)
Duane Arnold	B	5	671 (614)
Farley I	P	3	435 (377)
Fitzpatrick	B	5	2040 (2135)
Ft. Calhoun	P	7	668 (687)
Ginna	P	10	708 (714)
(Connecticut Yankee) Haddam Neck	P	12	1353 (1292)
Hatch I + II (N)	B	5, 1	449 (550)
Humboldt Bay	B	17	22 (15)
Indian Point I, II	P	18, 7	971 (939)
Indian Point III	P	4	308 ( )
Kewaunee	P	6	165 (146)
La Crosse	B	11	218 (215)
Maine Yankee	P	8	462 (555)
Millstone I	B	9	2158 (2075)
Millstone II	P	5	636 (612)
Monticello	B	9	531 (469)
Nine Mile Point I	B	11	591 (472)
North Anna I	P	2	218 (322)
Oconee I, II, III	P	7, 6	1055 (1119)
Oyster Creek	B	11	1733 (1607)

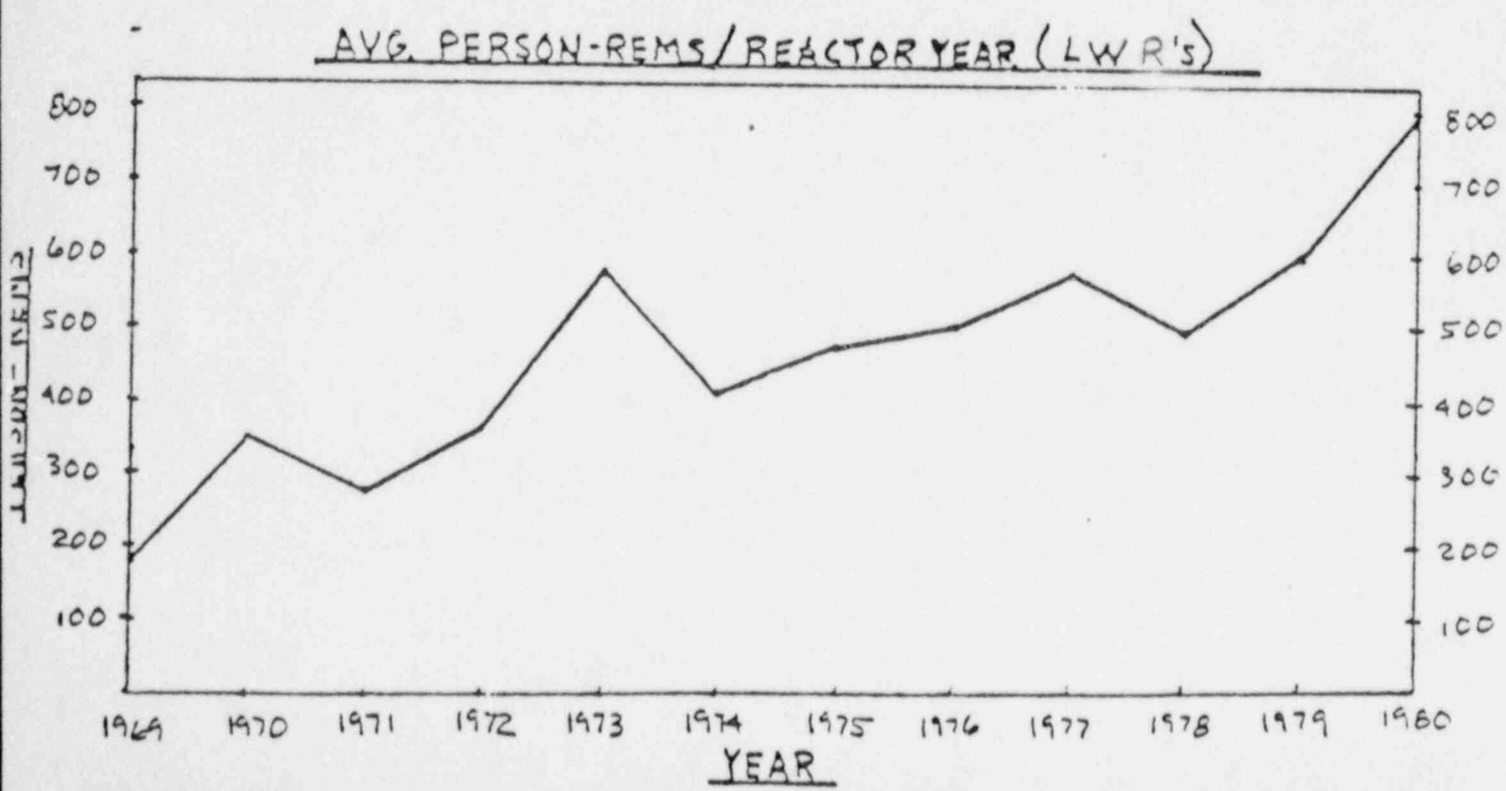
PLANT NAME	PLANT TYPE	AGE	EXPOSURE 20,407 (1976)
Palisades	P	9	434 (3[illegible]
Peach Bottom II, III	B	6, [illegible]	2302 (216[illegible]
Pilgrim	B	5	3126 (317[illegible]
Point Beach I, II	P	10, 8	598 (5[illegible]
Prairie Island I, II	P	7, 6	353 (32[illegible]
Quad Cities I, II	B	7, 7	4838 ([illegible])
Rancho Seco	P	5	412 (243
Robinson II	P	9	1852 (1762
Salem I	P	3	449 (400
San Onofre I	P	12	2387 (2241
St. Lucie I	P	4	532 (495)
Surry I, II	P	8, 7	3836 (3665)
Three Mile Island I, II	P	6, 2	395 (510)
Trojan	P	4	421 (448)
Turkey Point III, IV	P	8, 7	1651 (1819)
Vermont Yankee	B	8	1338 (1309)
Yankee Rowe	P	14	213 (179)
Zion I, II	P	7, 6	920 (864)
Fort St. Vrain	HTGR	2	3 ( )

Reactor Type	# of Reactors	Total Person-Rems	Avg. Person-Rems Per Reactor
BWR	26	29531	1136
PWR	42	24266	578
LWR	68	53797	791



AVG. PERSON-REMS/REACTOR YEAR (BWR's - PWR's)
PERSON-REMS
YEAR
BWR
PWR

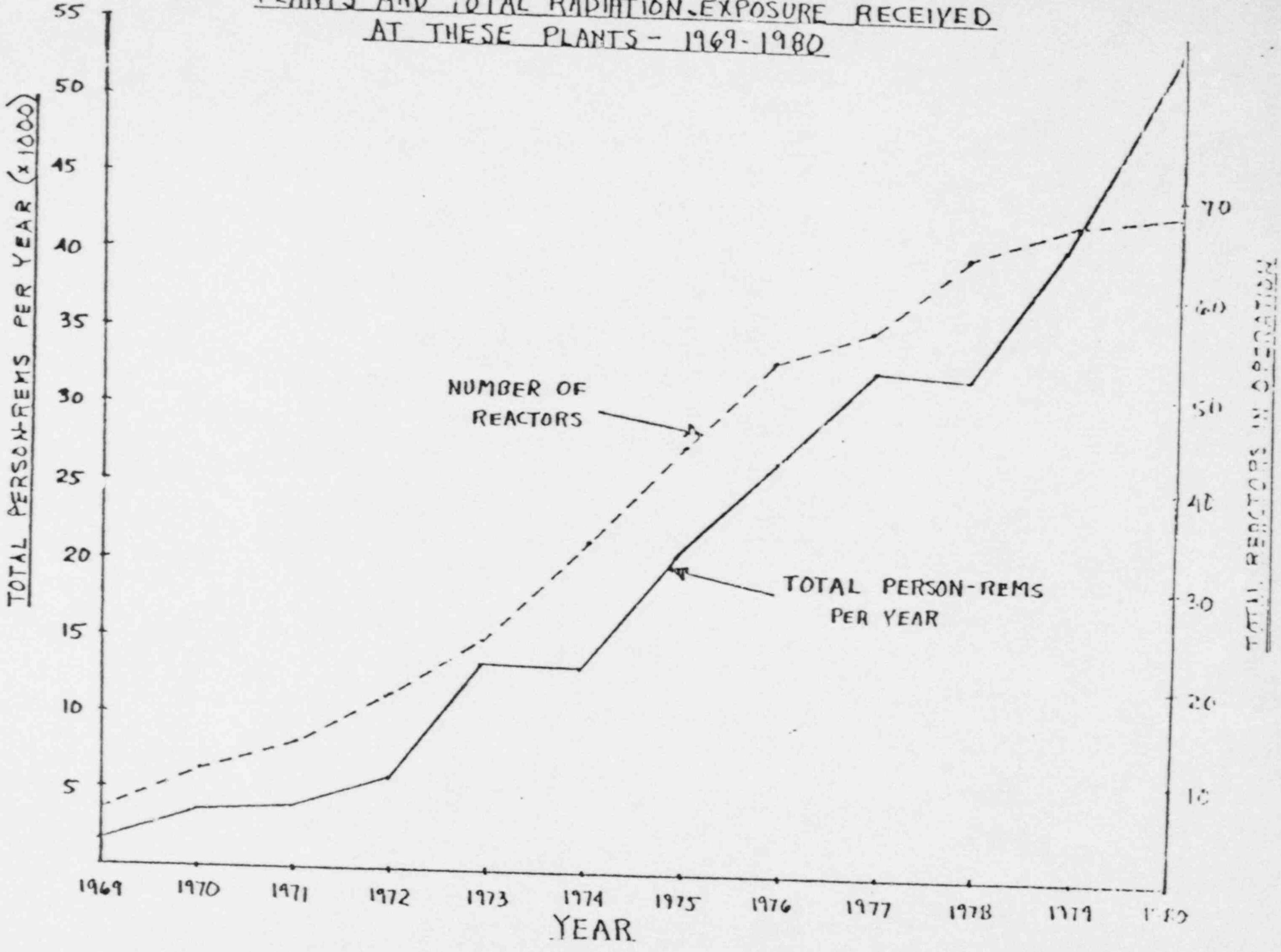
FIGURE 1



AVG. PERSON-REMS/REACTOR YEAR (LWR's)
PERSON-REMS
YEAR

FIGURE 2

TOTAL NUMBER OF OPERATING COMMERCIAL NUCLEAR PLANTS AND TOTAL RADIATION EXPOSURE RECEIVED AT THESE PLANTS - 1969-1980



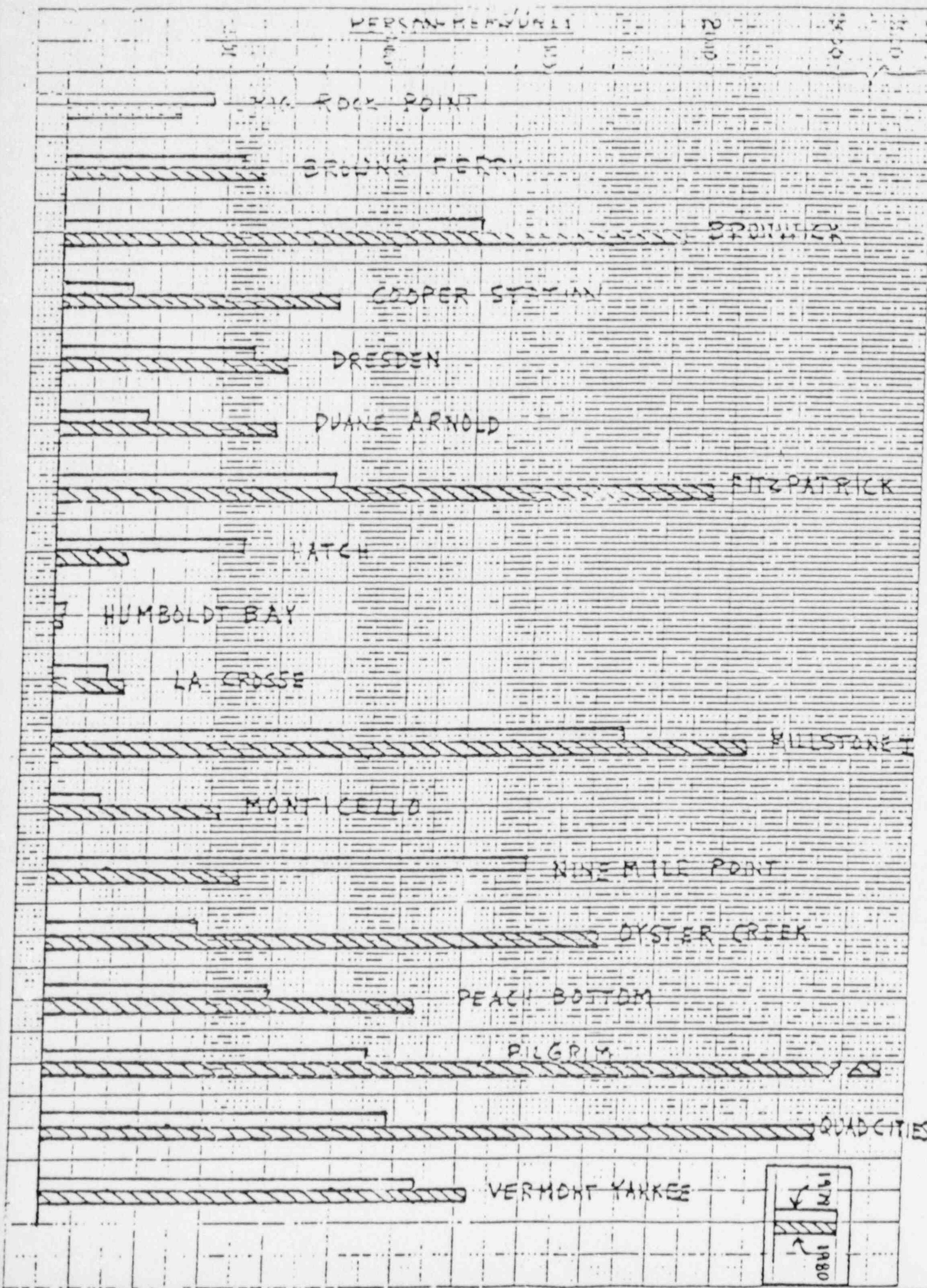


FIGURE 3a
BWR's PERSON-REM/UNIT 1979-1980

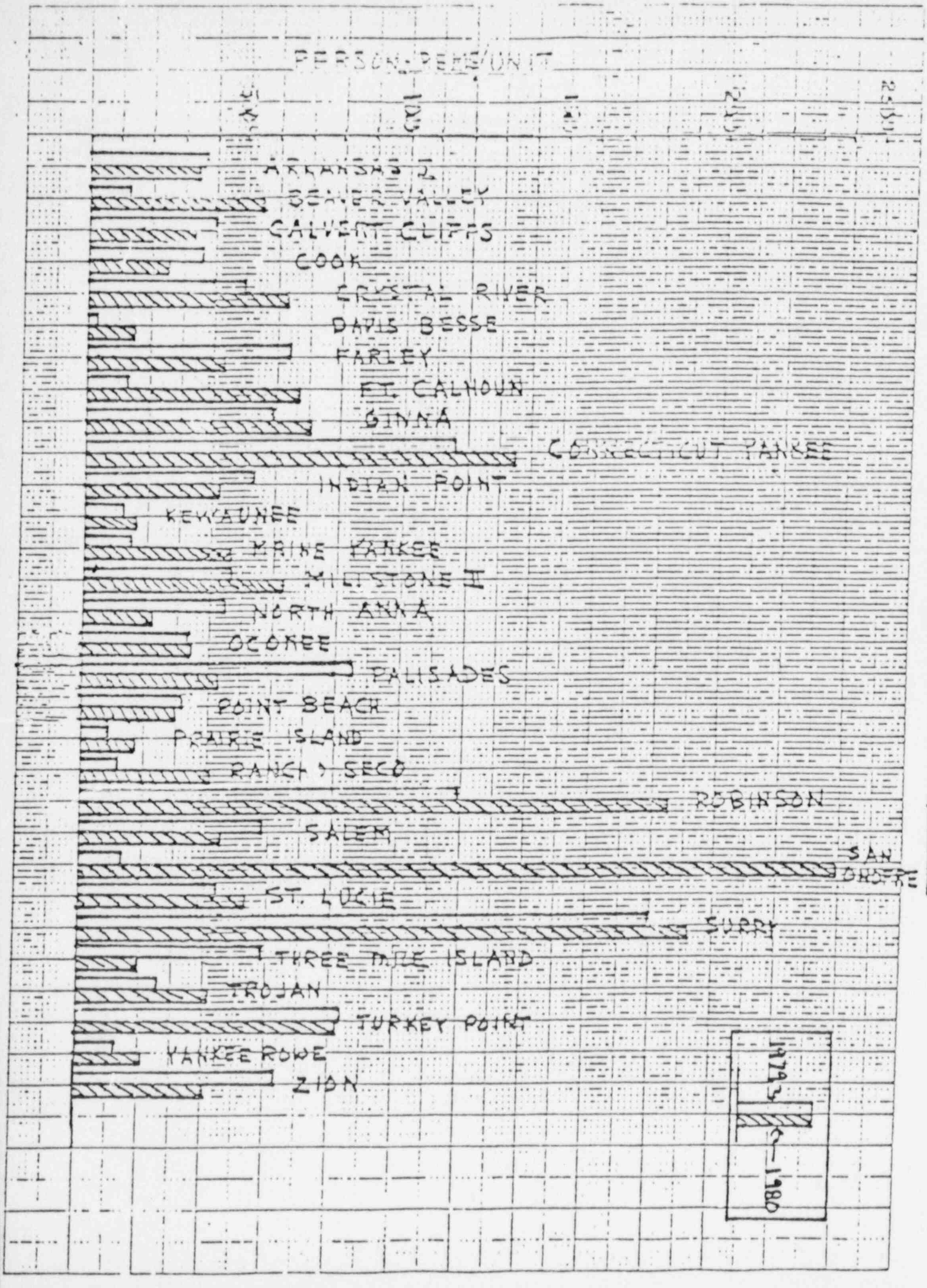


FIGURE 31
PWR's - PERSON-REMS/UNIT 1979-1980

46 1320

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

OCT 24 1984

MEMORANDUM FOR: Daniel R. Muller, Assistant Director for Radiation Protection, DSI

FROM: Frank J. Congel, Chief
Radiological Assessment Branch, DSI

SUBJECT: LWR OCCUPATIONAL DOSE DATA FOR 1982

Attached is a compilation and analysis of occupational radiation doses reported from 74 light water cooled nuclear reactors (LWRs) for the year 1982. The information in this memorandum was derived from reports submitted to the Commission in accordance with 10 CFR Part 20.407. Four pressurized water reactor units, Farley 2, McGuire 1, Salem 2 and Sequoyah 1, completed their first full year of commercial operation in 1982 and are included in this year's summary for the first time (indicated in Table 1 by an (N)). In addition, this summary includes four units (Dresden 1, Humboldt Bay, Indian Point 1, and Three Mile Island 2) that are currently shutdown for an indefinite period of time. These units have been retained in this summary since they are still licensed and dose is still accumulated to maintain them.

The total collective dose reported for 1982 was 52,190 person-rems, a decrease of 3.6 percent from the 1981 figure of 54,142 person-rems. This total gives an average of 705 person-rems per-unit, which is nearly eight percent lower than the 773 person-rems per unit reported for 1981. This is also the second year in a row in which the average person-rems per reactor has shown a decrease from the 1980 high of 791 person-rems per unit.

In 1982 the average dose for PWR units was 578 person-rems, an 11.3 percent decrease from the 1981 average of 652 person-rems. The number of PWRs in this year's compilation increased from 44 to 48. The 1982 average boiling water reactor (BWR) dose of 940 person-rems per unit is a 4 percent decrease from the 1981 average of 980 person-rems. The number of BWRs remained the same in 1982 at 26. The attached exposure compilation table (Table 1) presents a breakdown of the person-rems received at each of the LWRs which had completed at least one full year of commercial operation by the end of 1982. The exposure figures listed in Table 1 were derived from data submitted by the licensees in response to the requirements of 10 CFR Part 20.407 and plant technical specifications (the plant technical specifications require that only personnel receiving greater than 100 mrem be listed--these data are shown in parentheses in Table 1). The figures quoted above and used in the attached figures are from the 10 CFR Part 20.407 data.

Figure 1 shows the total average yearly person-rem figures for BWRs, PWRs, and LWRs for the years 1969-1982. For the ninth consecutive year, the average exposure for BWRs has remained higher than the average yearly PWR

~~8411060370 XA~~ 8pp.

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

OCT 24 1984

MEMORANDUM FOR: Daniel R. Muller, Assistant Director for Radiation Protection, DSI

FROM: Frank J. Congel, Chief Radiological Assessment Branch, DSI

SUBJECT: LWR OCCUPATIONAL DOSE DATA FOR 1982

Attached is a compilation and analysis of occupational radiation doses reported from 74 light water cooled nuclear reactors (LWRs) for the year 1982. The information in this memorandum was derived from reports submitted to the Commission in accordance with 10 CFR Part 20.407. Four pressurized water reactor units, Farley 2, McGuire 1, Salem 2 and Sequoyah 1, completed their first full year of commercial operation in 1982 and are included in this year's summary for the first time (indicated in Table 1 by an (N)). In addition, this summary includes four units (Dresden 1, Humboldt Bay, Indian Point 1, and Three Mile Island 2) that are currently shutdown for an indefinite period of time. These units have been retained in this summary since they are still licensed and dose is still accumulated to maintain them.

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~~8411060370 XA~~ 8pp.

exposure. Figure 2 shows the total number of operating reactors and the total collective LWR dose per year plotted for the years 1969-1982. Figures 3, 4a, and 4b provide a graphic comparision of the annual occupational exposures per unit, for each plant, for the three year period from 1980 through 1982.

This information was compiled by C. Hinson, RPS/RAB.

Frank J. Congel

Frank J. Congel, Chief
Radiological Assessment Branch
Division of Systems Integration

Enclosure
As Stated

cc: w/attachment
H. Denton
R. Bernero
D. Lynch
R. Alexander
E. Conti
M. Parsont
R. Cunningham
W. Pasciak, Reg. I
M. Shanbacky, Reg. I
C. Jenkins, Reg. II
R. Gregor, Reg. III
B. Murray, Reg. IV
H. Book, Reg. V
R. Hartfield
B. Brooks
A. Roecklein
C. Hinson
D. Eisenhut
J. Cunningham
J. Wigginton

TABLE 1

1982 EXPOSURE DATA

PLANT NAME	Type	Age	20.407 (Tech. Spec. data)
Arkansas I, II	P	8, 2	803 (670)
Beaver Valley I	P	6	599 (565)
Big Rock Point	B	14	328 (301)
Browns Ferry I, II, III	B	8, 7, 5	2220 (1730)
Brunswick, I, II	B	7, 5	3792 (3711)
Calvert Cliffs I, II	P	7, 5	1057 (941)
Cook I, II	P	7, 4	699 (643)
Cooper Station	B	8	542 (506)
Crystal River III	P	5	177 (142)
Davis-Besse I	P	5	164 (263)
Dresden I, II, III	B	22, 12, 11	2923 (2852)
Duane Arnold	B	7	229 (298)
Farley I, II (N)	P	5, 1	484 (446)
Fitzpatrick	B	7	1190 (1189)
Fort Calhoun I	P	9	217 (140)
Ginna	P	12	1140 (1108)
Haddam Neck (Conn. Yankee)	P	14	126 (122)
Hatch I, II	B	7, 3	1460 (1282)
Humboldt Bay	B	19	19 (15)
Indian Pt. I, II	P	20, 9	1635 (1754)
Indian Pt. III	P	6	1226 (1430)
Kewaunee	P	8	101 (89)
LaCrosse	B	13	205 (202)
Maine Yankee	P	10	619 (616)
McGuire I (N)	P	1	169 (336)
Millstone I	B	11	929 (936)
Millstone II	P	7	1413 (1422)
Monticello	B	11	993 (941)
Nine Mile Pt.	B	13	1264 (1487)
North Anna I, II	P	4, 2	1915 (2024)
Oconee I, II, III	P	9, 8, 8	1792 (2068)

PLANT NAME	Type	Age	20.407 (T... d...)
Oyster Creek	B	13	865 (7
Palisades	P	11	330 (2
Peach Bottom II, III	B	8, 8	1977 (18
Pilgrim I	B	10	1539 (11
Point Beach I, II	P	12, 10	609 (5
Prairie Island I, II	P	9, 8	229 (2
Quad Cities I, II	B	9, 9	3757 (36
Rancho Seco I	P	7	337 (3
Robinson II	P	11	1426 (13
Salem I, II (N)	P	5, 1	1203 (10
San Onofre I	P	14	832 (78
Sequoyah I (N)	P	1	570 (28
St. Lucie I	P	6	272 (21
Surry I, II	P	10, 9	1490 (13
Three Mile Island I, II	P	8, 4	1004 (99
Trojan	P	6	419 (35
Turkey Point III + IV	P	8, 9	2119 (279
Vermont Yankee	B	10	205 (20
Yankee Rowe	P	16	474 (46
Zion	P	9, 8	2103 (195

(N) ≡ Newly counted plant in 1982

Reactor Type	#	20.407 Total Person-Rem	20.407 Average Person-Rems / Reac...
PWR	48	27753	578
BWR	26	24437	940
LWR	74	52190	705

FIGURE 1

COMMERCIAL LIGHT WATER COOLED REACTORS
1969-1982

OCCUPATIONAL RADIATION DOSES AT NUCLEAR POWER-PLANTS

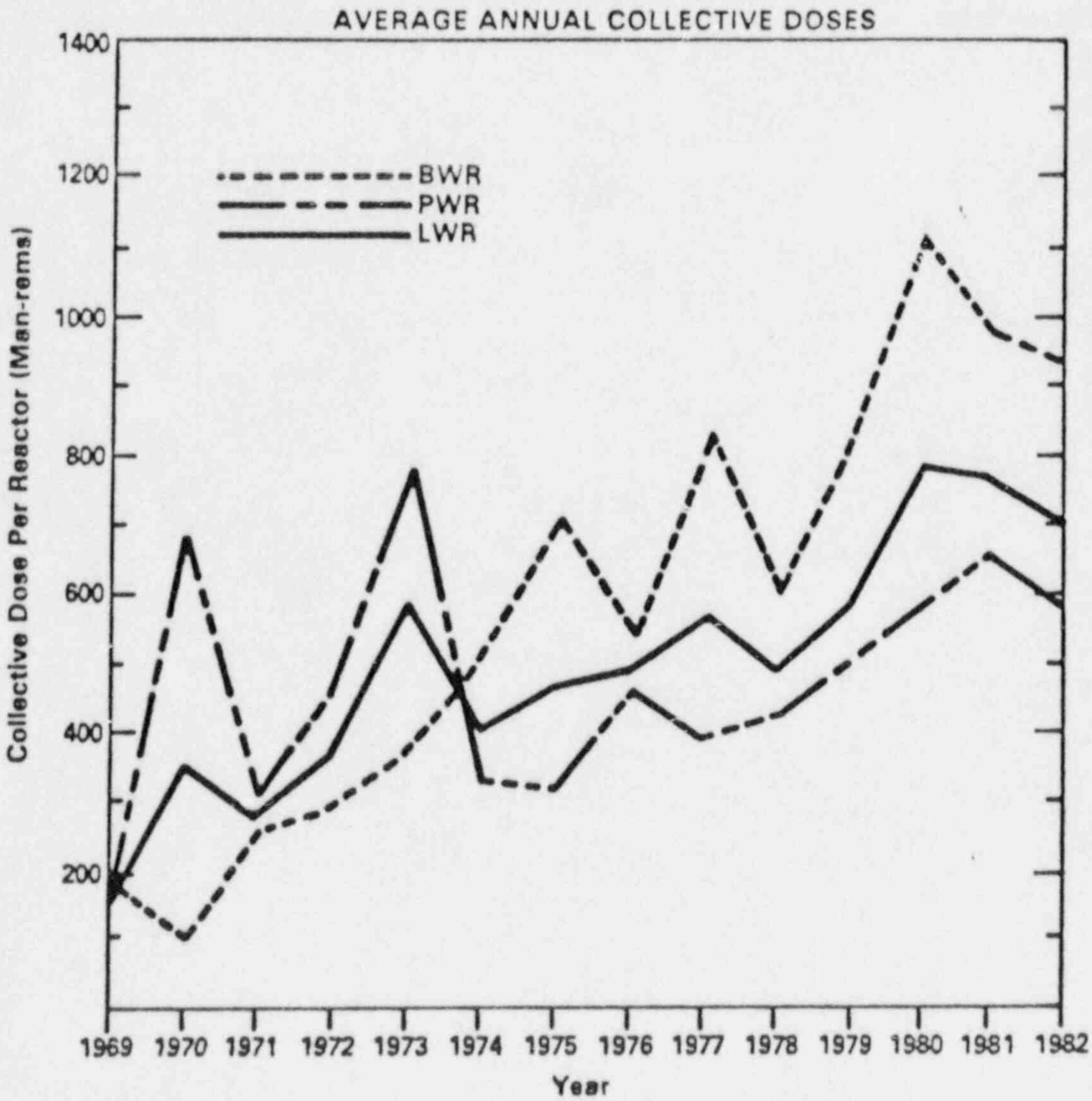
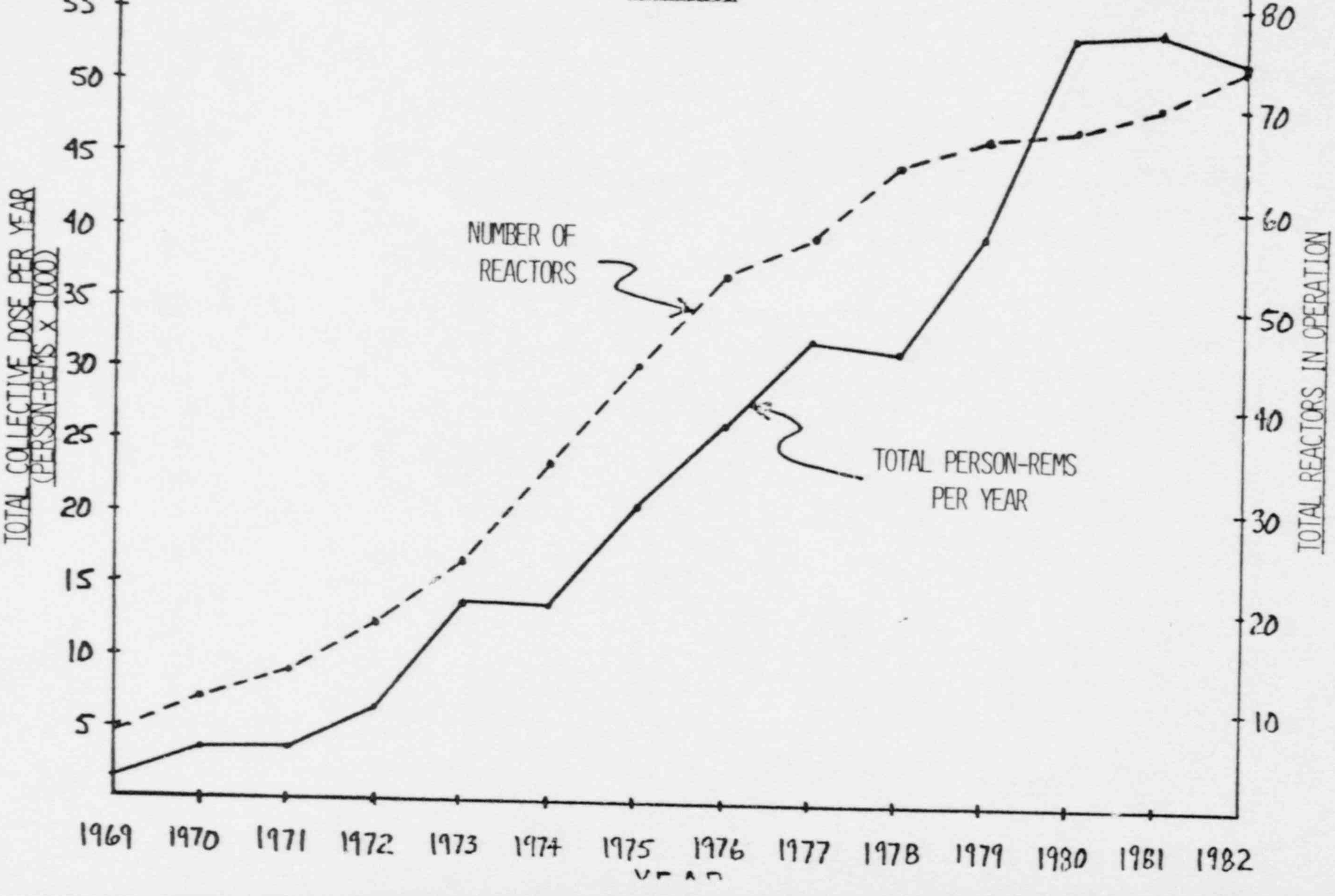


FIGURE 2

TOTAL NUMBER OF COMMERCIAL OPERATING NUCLEAR PLANTS

AND TOTAL COLLECTIVE EXPOSURE RECEIVED AT THESE PLANTS

1969-1982



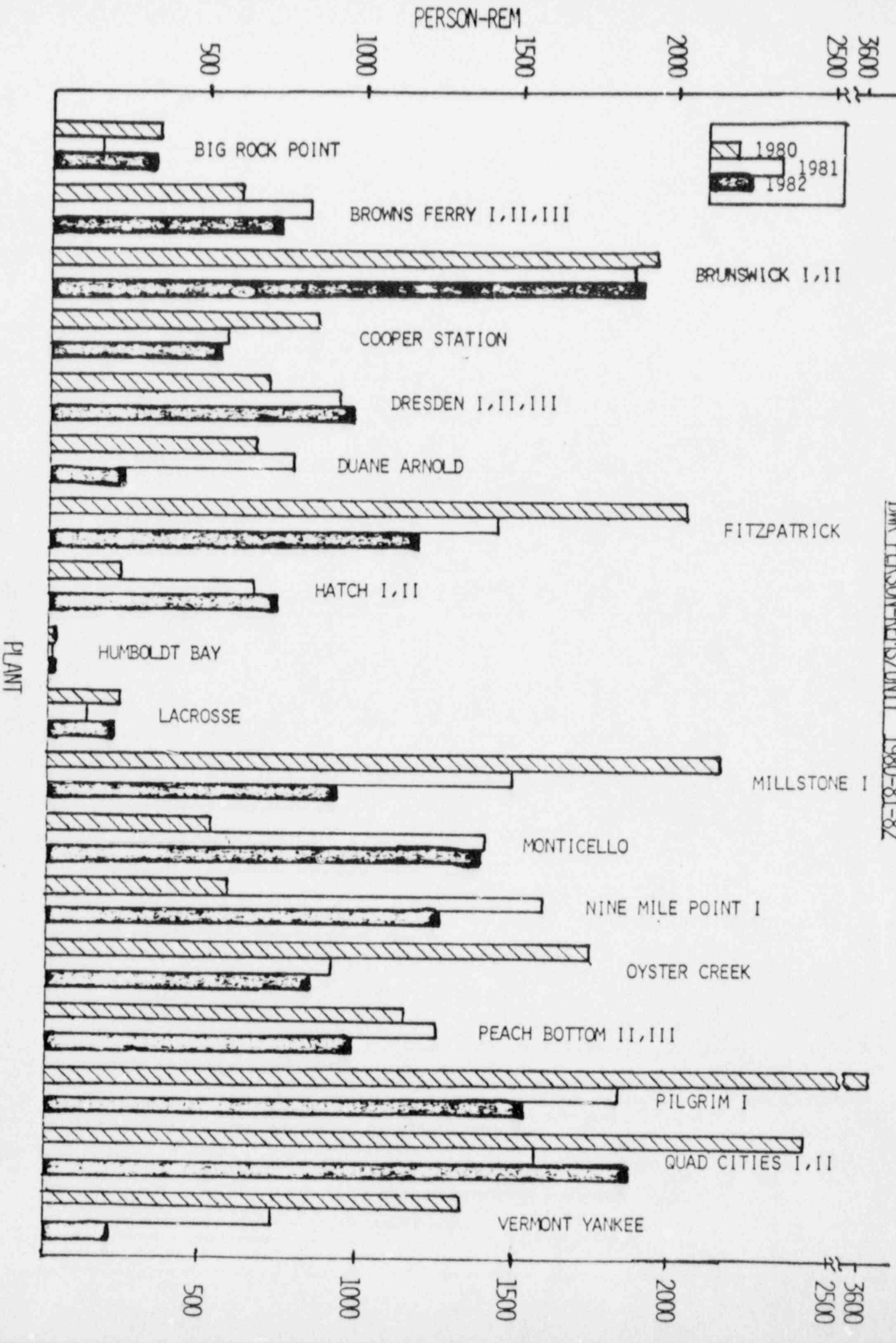
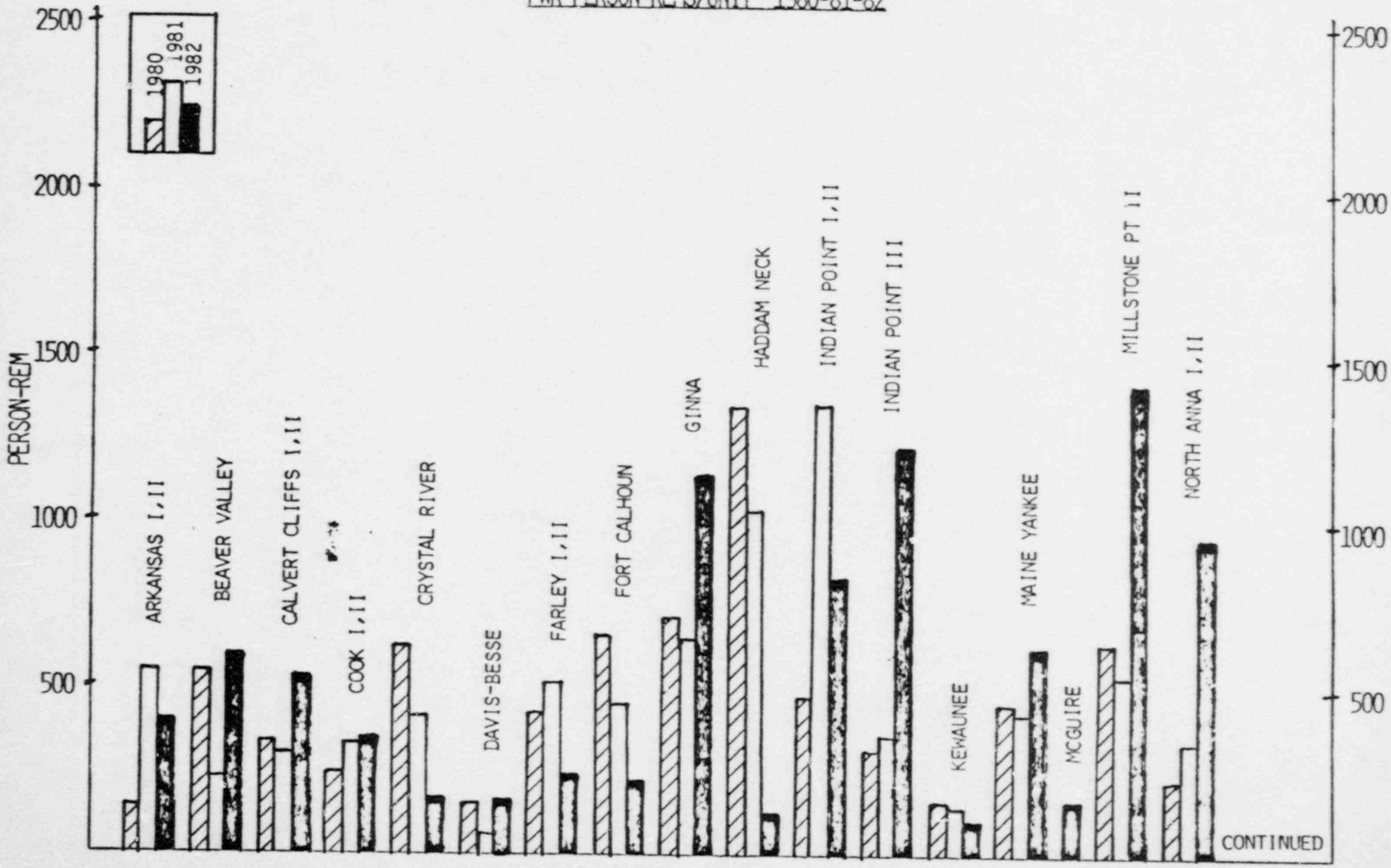


FIGURE 3

BWR PERSON-REMS/UNIT 1980-81-82

FIGURE 4A

PWR PERSON-REMS/UNIT 1980-81-82



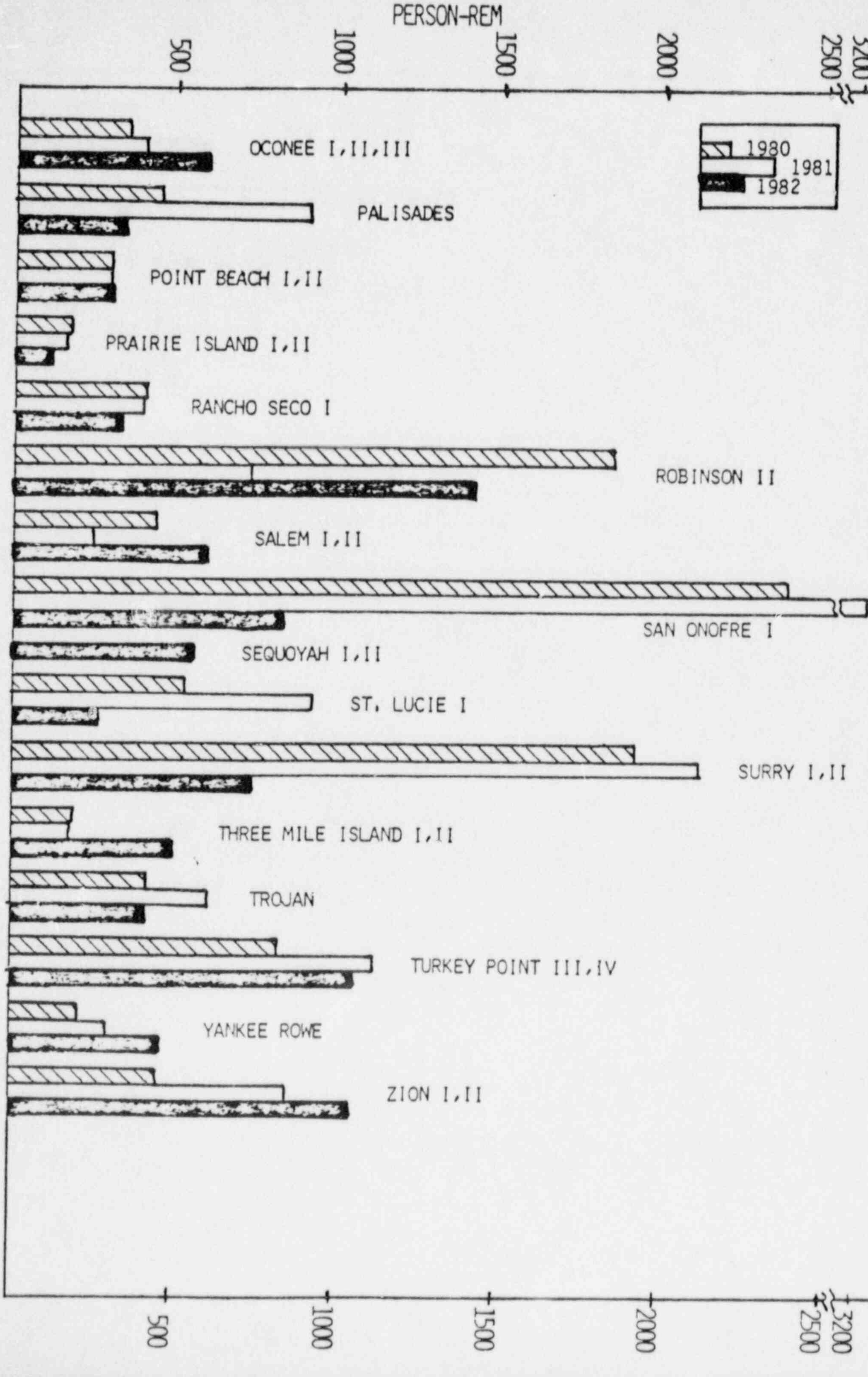


FIGURE 4B, PWR PERSON-REMS/UNIT 1980-81-82

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

DEC 12 1984

MEMORANDUM FOR Daniel R. Muller, Assistant Director
for Radiation Protection, DSI

FROM: Frank J. Congel, Chief
Radiological Assessment Branch, DSI

SUBJECT: LWR OCCUPATIONAL DOSE DATA FOR 1983

Attached is a compilation and analysis of occupational radiation doses reported from 75 light water moderated nuclear reactors (LWRs) for the year 1983. The information in this memorandum was derived from reports submitted to the Commission in accordance with 10 CFR Part 20.407. Only one pressurized water reactor (PWR), Sequoyah 2, completed its first full year of commercial operation in 1983 and is included in this year's summary for the first time (indicated in Table 1 by an (N)). In addition, this summary includes four units (Dresden 1, Humboldt Bay, Indian Point 1, and Three Mile Island 2) that are currently shutdown for an indefinite period of time. These units have been retained in this summary since they are still licensed and dose is still accumulated to maintain them.

The total collective dose for all LWRs in 1983 was 56,471 person-rems. This number is eight percent higher than the 1982 total of 52,190 person-rems, and is the highest annual LWR total dose to date (the previous high total was 54,142 person-rems in 1981). The average dose per unit for LWRs in 1983 was 753 person-rems per unit, well above the 1982 average of 705 person-rems per unit, but still below the highest recorded average of 791 person-rems per unit in 1980. The increase in the average dose per unit in 1983 ends a two year decline of this value for LWRs.

In 1983 the average dose for PWR units was 592 person-rems, a two percent increase from the 1982 average of 578 person-rems. The number of PWRs in this year's compilation increased from 48 to 49. The average boiling water reactor (BWR) dose of 1,056 person-rems per unit in 1983 was 12 percent higher than the 1982 BWR average of 940 person-rems. The number of BWRs remained the same in 1983 at 26 units. The attached exposure compilation table (Table 1) presents a breakdown of the person-rems received at each of the LWRs which had completed at least one full year of commercial operation by the end of 1983. The exposure figures listed in Table 1 were derived from data submitted by the licensees in response to the requirements of 10 CFR Part 20.407 and plant technical specifications (the plant technical specifications require that only personnel receiving greater than 100 mrem be listed--these data are shown in parentheses in Table 1). The

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figures quoted above and used in the attached figures are from the 10 CFR Part 20.407 data.

Figure 1 shows the total average yearly person-rem figures for BWRs, PWRs, and LWRs for the years 1969-1983. For the tenth consecutive year, the average exposure for BWRs has remained higher than the average yearly PWR exposure. Figure 2 shows the total number of operating reactors and the total collective LWR dose per year plotted for the years 1969-1983. Figure 3 provides a graphic comparison of the annual occupational exposure per unit, for each BWR, for the three year period from 1981 to 1983. Four BWR units--Brunswick I and II, Oyster Creek, and Vermont Yankee--had doses which exceeded 1500 person-rems in 1983. Although these four units represented only 15 percent of the BWRs operating in 1983, they contributed over one fourth (7259 person-rems) of the total BWR exposure in 1983. Major maintenance jobs which were large contributors to BWR doses in 1983 included inspection and repair of primary piping and pipe welds,and Mark I torus modifications.

Figures 4a and 4b provide a comparison of occupational exposures per unit for PWRs for the three year period from 1981-1983. In 1983, seven PWR units--Haddam Neck, Millstone Pt. II, Surry I and II, St. Lucie I, and Turkey Pt. III and IV--all had doses which exceeded 1200 person-rems. These seven units, while comprising only 14 percent of the PWRs operating in 1983, contributed over 35 percent (10370 person-rems) of the total PWR exposure in 1983. Steam generator maintenance and repair continued to be a major source of personnel exposure at PWRs in 1983. Another major source of exposures at PWRs was maintenance on reactor vessel internals, such as core barrel and core thermal shield repair, and feedwater nozzle replacement.

This information was compiled by C. Hinson, RPS/RAB.

Frank J. Congel

Frank J. Congel, Chief
Radiological Assessment Branch
Division of Systems Integration

Enclosure
As Stated

cc: See next page.

TABLE 1

1983 EXPOSURE DATA

PLANT NAME	Type	Age	Person-Rems 20.407 (Tech Spec Data)
Arkansas I,II	P	9 3	1397 (1220)
Beaver Valley I	P	7	772 (677)
Big Rock Point	B	15	263 (248)
Brown's Ferry I,II,III	B	9 8 6	3363 (2564)
Brunswick I,II	B	8 6	3475 (3492)
Calvert Cliffs I,II	P	8 6	668 (590)
Cook I,II	P	8 5	658 (566)
Cooper Station	B	9	1293 (1274)
Crystal River III	P	6	552 (552)
Davis-Besse I	P	6	80 (145)
Dresden I,II,III	B	23 13 12	3582 (3491)
Duane Arnold	B	8	1135 (1319)
Farley I,II	P	6 2	1021 (956)
Fitzpatrick	B	8	1090 (1090)
Fort Calhoun I	P	10	433 (459)
Ginna	P	13	855 (961)
Haddam Neck (Conn. Yankee)	P	15	1384 (1423)
Hatch I,II	B	8 4	1299 (1099)
Humboldt Bay	B	20	17 (13)
Indian Pt. I,II	P	21 10	486 (483)
Indian Pt. III	P	7	607 (588)
Kewaunee	P	9	165 (165)
LaCrosse	B	14	313 (315)
Maine Yankee	P	11	164 (147)
McGuire I	P	2	521 (563)
Millstone Pt. I	B	12	244 (269)
Millstone Pt. II	P	8	1881 (2077)
Monticello	B	12	121 (103)
Nine Mile Pt	B	14	860 (875)
North Anna I,II	P	5 3	665 (653)
Oconee I,II,III	P	10 9 9	1207 (1285)
Oyster Creek	B	14	2257 (2304)
Palisades	P	12	977 (911)
Peach Bottom II,III	B	9 9	2963 (2807)
Pilgrim I	B	11	1162 (873)
Point Beach I,II	P	13 11	1403 (1360)
Prairie Island I,II	P	10 9	233 (219)
Quad Cities I,II	B	10 10	2491 (2437)
Rancho Seco I	P	8	787 (689)
Robinson II	P	12	923 (869)
Salem I, II	P	6 2	581 (528)
San Onofre I	P	15	155 (118)
Sequoyah I,II (N)	P	2 1	491 (507)
St. Lucie I	P	7	1204 (1086)
Surry I,II	P	11 10	3220 (2822)
Three Mile Island I	P	9 5	1159 (I-902, II-452)
Trojan	P	7	307 (263)
Turkey Point III + IV	P	10 9	2681 (3315)
Vermont Yankee	B	11	1527 (1527)
Yankee Rowe	P	17	68 (63)
Zion I,II	P	10 9	1311 (1254)

(N) ≡ Newly counted plant in 1983

Reactor Type	No. of Reactors	Total Person-Rems *	Average Person-Rems/React *
PWR	49	29016	592
BWR	26	27455	1056
LWR	75	56471	753

* 20.407 dose data used to calculate these figures

<u>FIGURE 1</u>

COMMERCIAL LIGHT WATER COOLED REACTORS
1969 - 1983

OCCUPATIONAL RADIATION DOSES AT NUCLEAR POWER-PLANTS

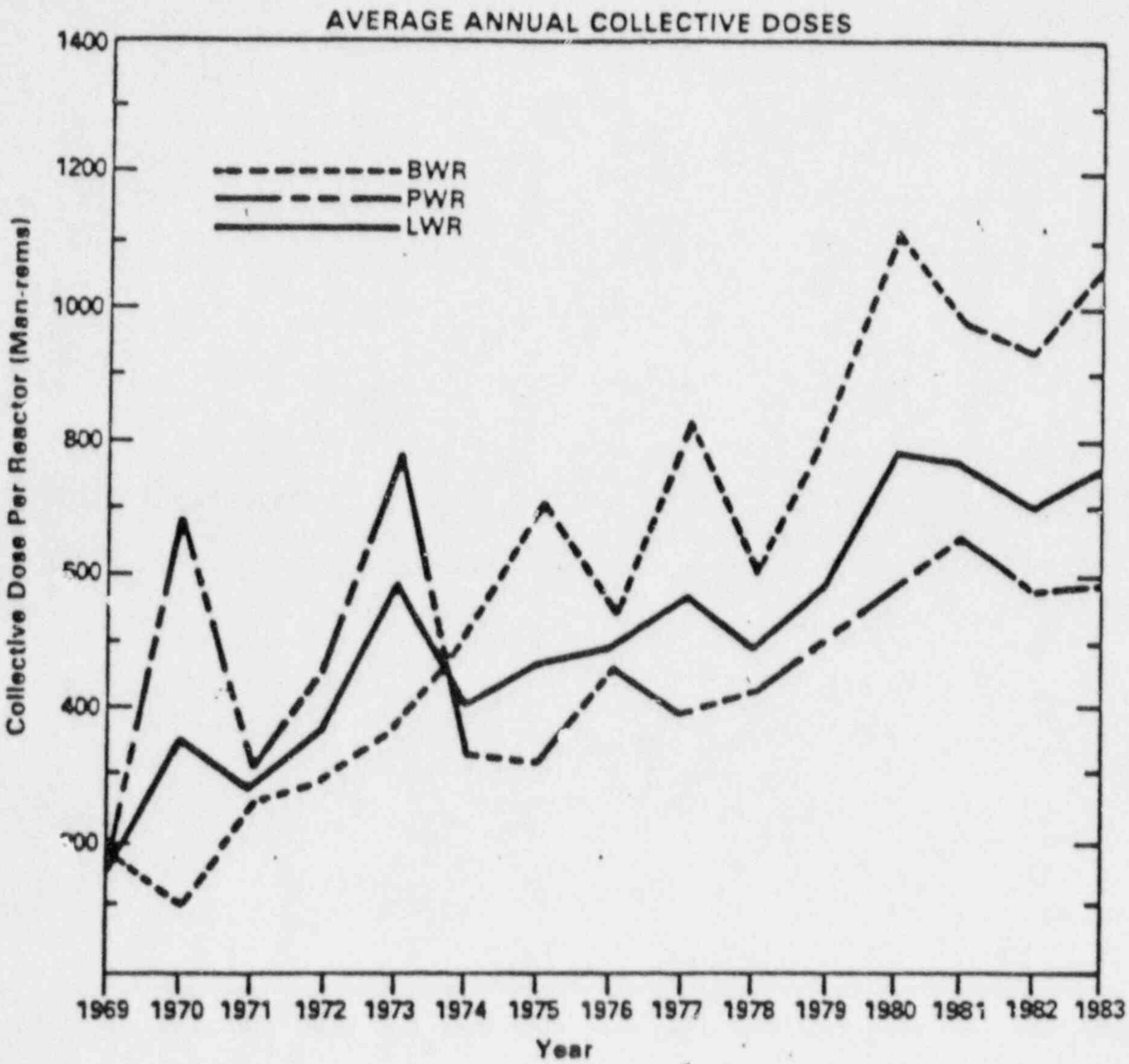
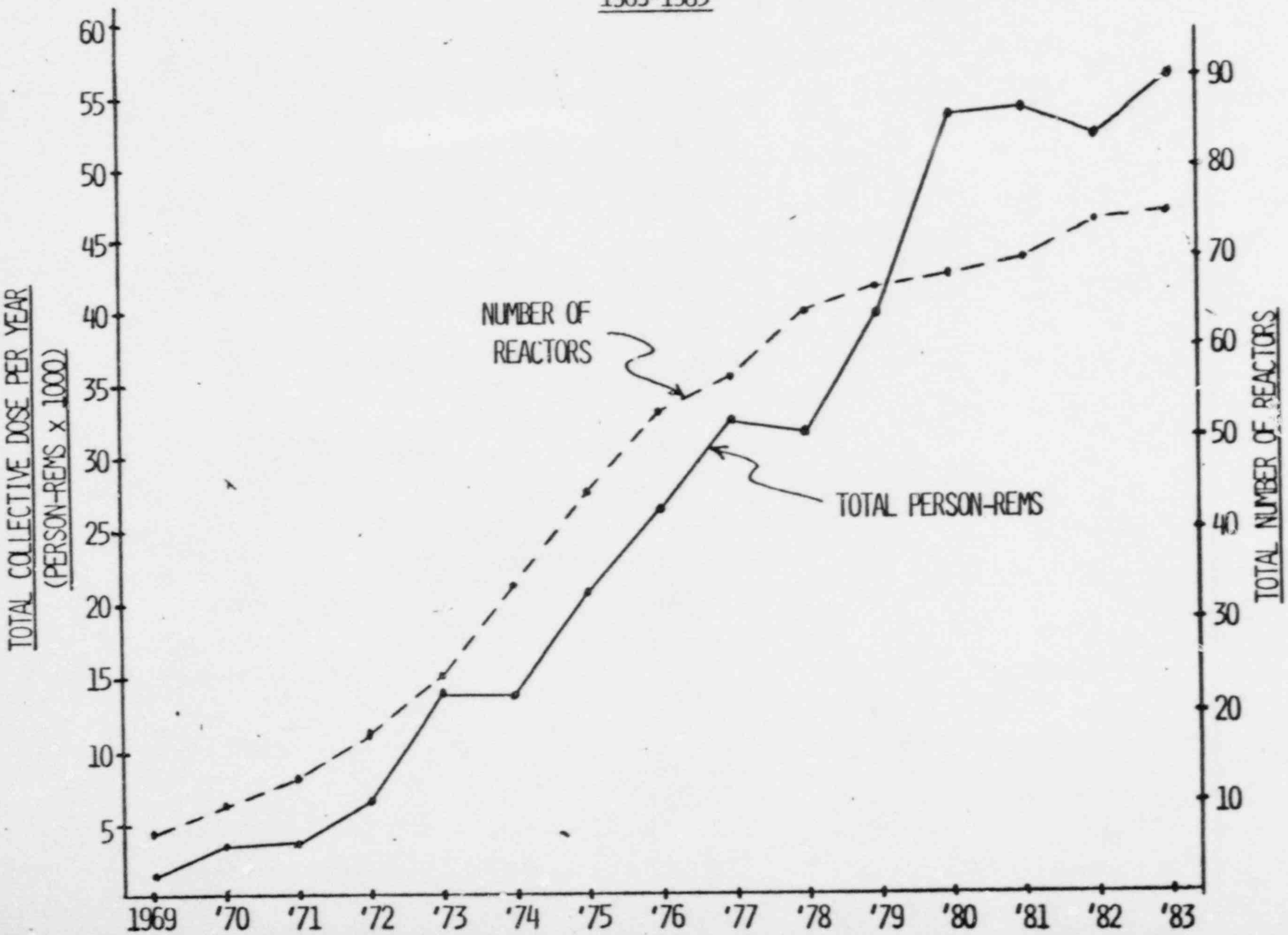


FIGURE 2

TOTAL NUMBER OF COMMERCIAL OPERATING NUCLEAR PLANTS AND TOTAL COLLECTIVE EXPOSURE RECEIVED AT THESE PLANTS

1969-1983



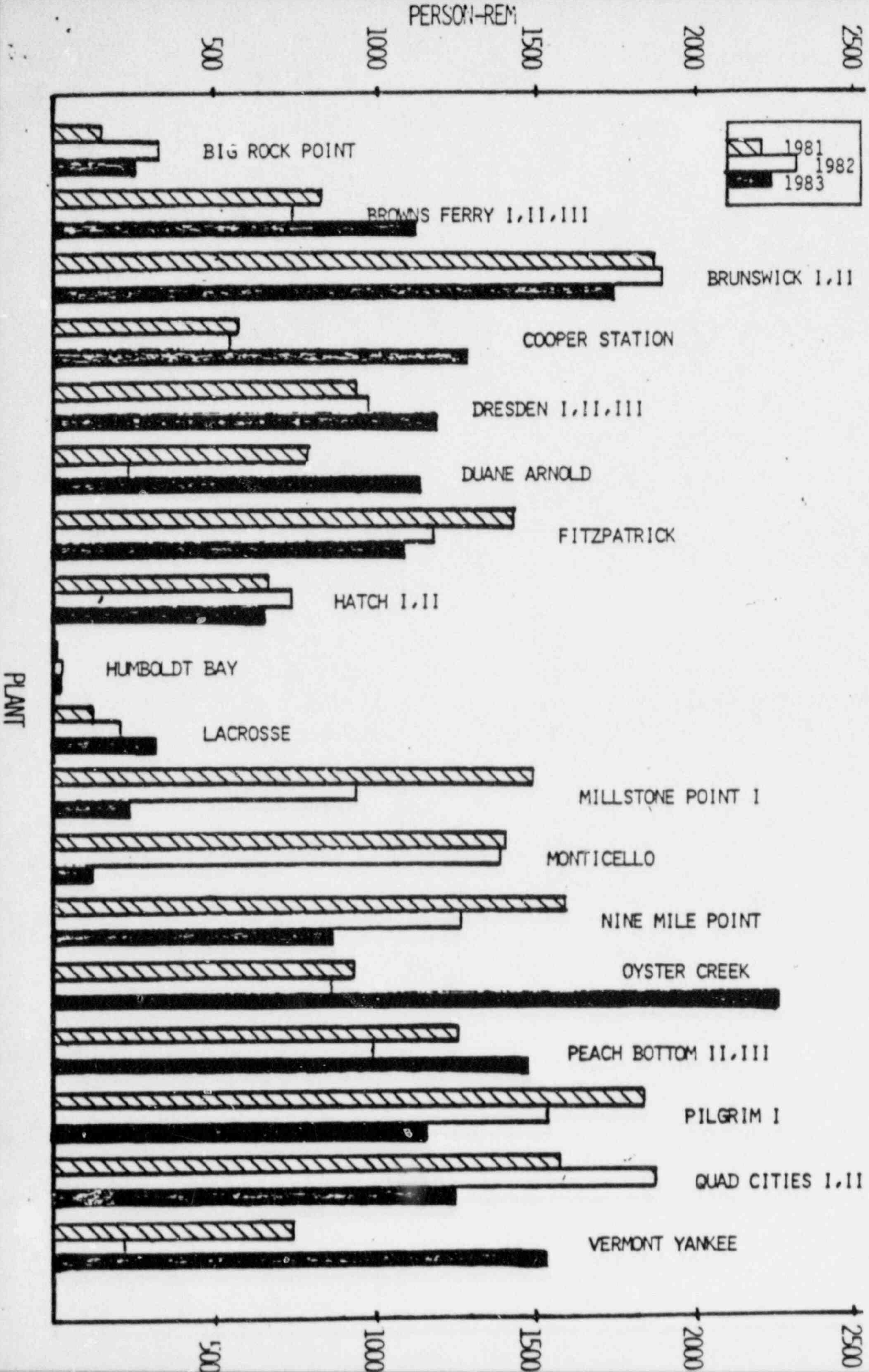


FIGURE 3

BWR PERSON-REMS/UNIT 1981-82-83

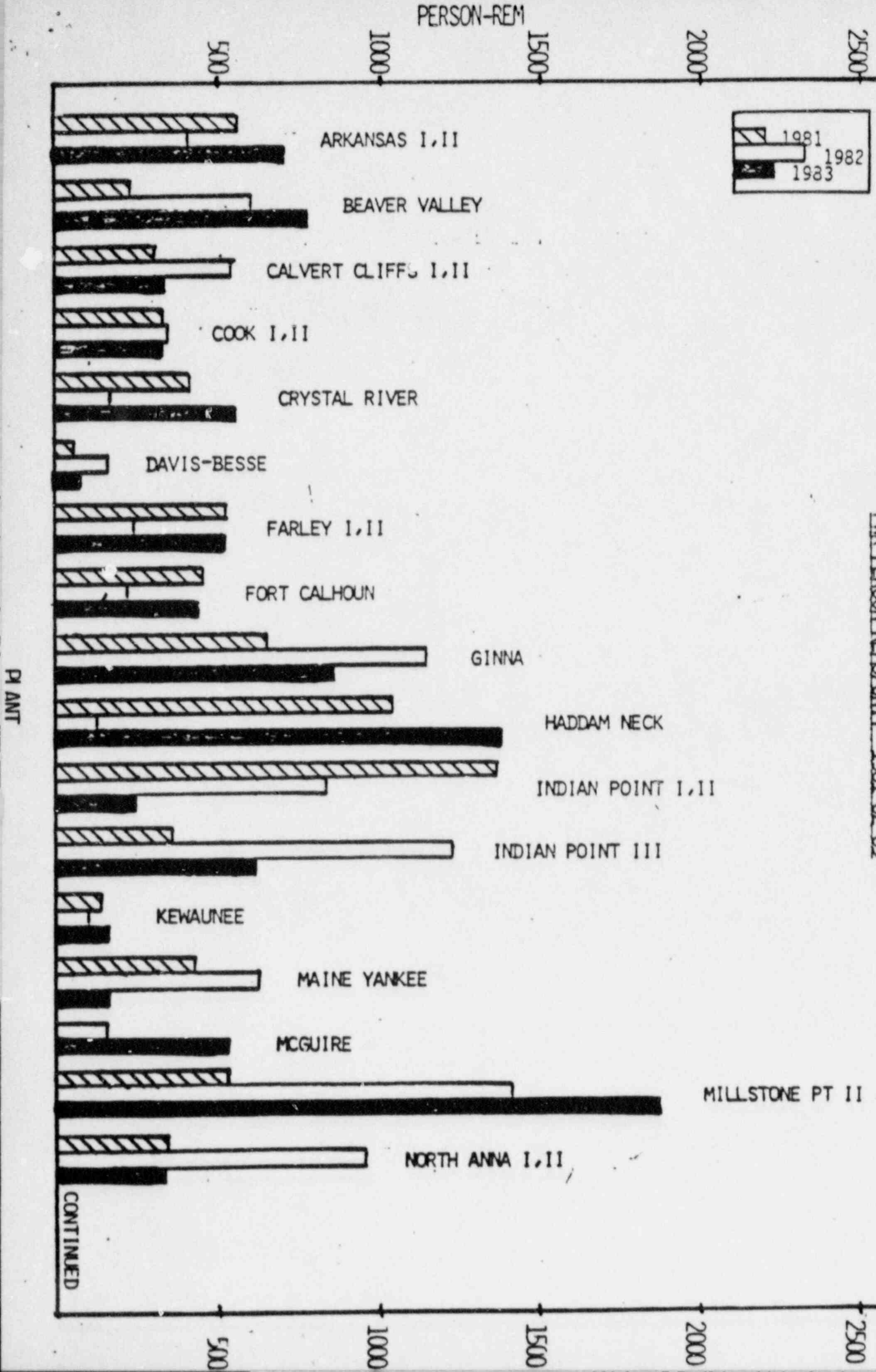


FIGURE 4A

PWR PERSON-REMS/UNIT 1981-82-83

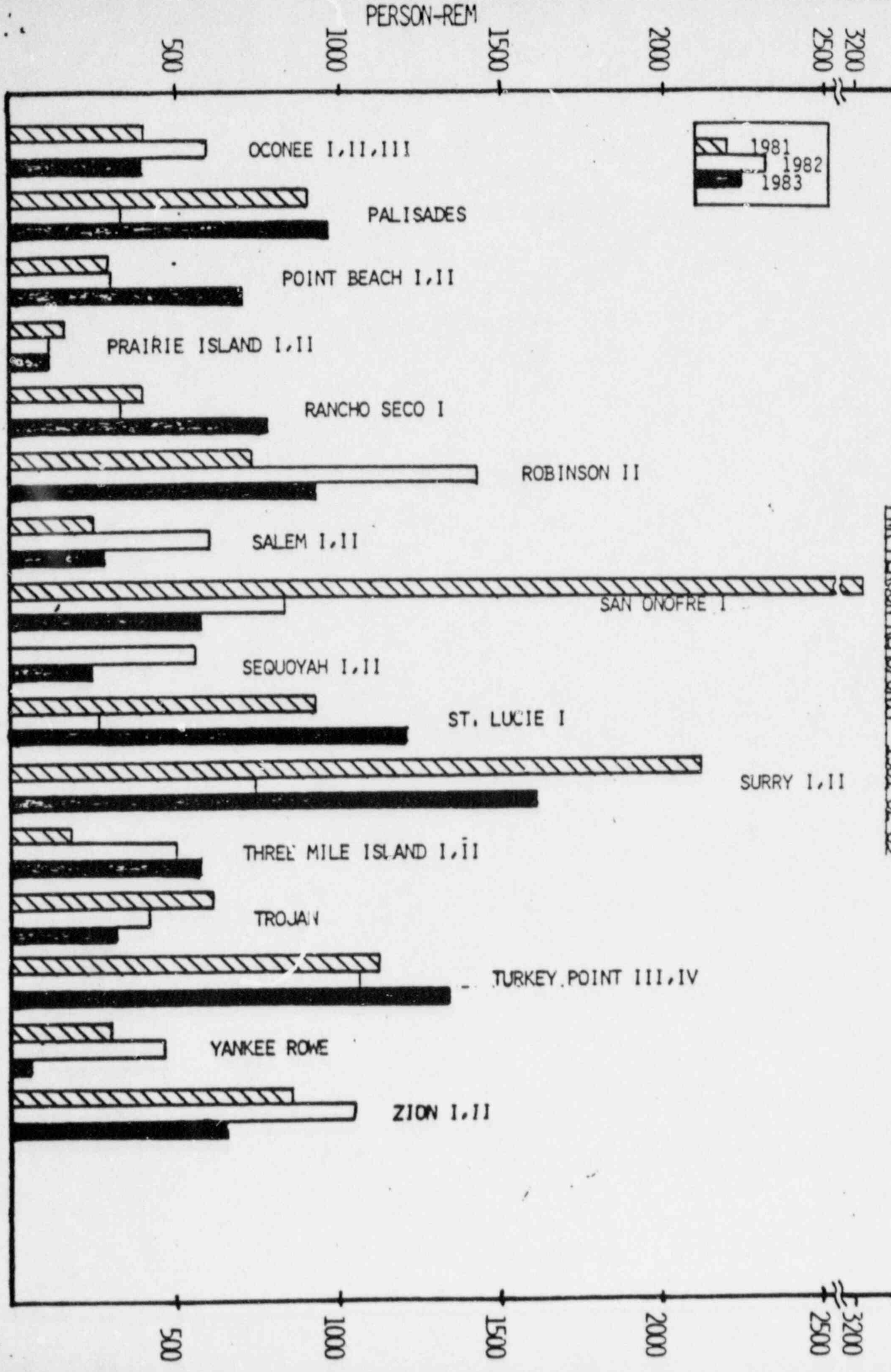


FIGURE 4B
PWR PERSON-REMS/UNIT 1981-82-83

cc: w/attachment
H. Denton
R. Bernero
R. Alexander
E. Conti
M. Parsont
R. Cunningham
W. Pasciak, Reg. I
M. Shambacky, Reg. I
G. Jenkins, Reg. II
R. Gregor, Reg. III
B. Murray, Reg. IV
H. Book, Reg. V
R. Hartfield
B. Brooks
A. Roecklein
D. Eisenhut
J. Cunningham
J. Wigginton
RAB Staff

Enclosure 3

JUL 10 1984

No. 50-219

GPU Nuclear Corporation
ATTN: Mr. P. B. Fielder
Vice President and Director
Oyster Creek Nuclear Generating Station
P. O. Box 388
Forked River, New Jersey 08731

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP); Report No. 50-219/84-19

The NRC Region I SALP Board has reviewed and evaluated the performance activities of the Oyster Creek Nuclear Generating Station for the period February 1, 1983 to April 31, 1984. The results are contained in the enclosed report dated June 21, 1984. A meeting to discuss this assessment has been tentatively scheduled for July 16, 1984. The meeting will be held in Forked River, New Jersey near the plant.

The SALP Board concluded that satisfactory or higher levels of performance occurred in all functional areas. It was noted that steady or improved performance had occurred in functional areas with the exception of Security, Outage Technical Support (special assessment area), and Licensing. In the Security area performance had substantially degraded during the first half of the assessment period. However, improvement was noted in the second half after staffing changes were implemented.

With regard to the Outage Technical Support and Licensing assessments, although satisfactory performance was assessed, we are concerned with corporate engineering support provided to the plant in that a number of problems associated with design control, engineering support, and timeliness of responses were noted. Similar problems were noted in the earlier assessment for Three Island Unit No. 1. If uncorrected, these problems could potentially lead to a further degradation in your overall performance. You should be prepared to discuss your efforts to improve the corporate engineering support functions at the meeting.

We had noted improved performance in your 1983 emergency drill over the previous year's drill. However, we do not believe this improving trend was continued into the May 10, 1984 drill. Although this latest drill is outside the assessment period, we would like you to be prepared to discuss any improvements you plan for future drills.

The meeting is intended to be a dialogue wherein any comments you may have regarding our report may be discussed. Written responses addressing the above areas are requested within 30 days of the meeting.

Your cooperation is appreciated.

Sincerely,

Original Signed By:

Richard W. Starostecki, SALP
Board Chairman
Division of Project and
Resident Programs

Enclosure: As Stated

cc w/encls:
BWR Licensing Manager
Licensing Manager, Oyster Creek
Public Document Room (PDR)
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6/15/84	6/22/84	7/10/84

Report No. 50-219/84-19

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

GPU NUCLEAR CORPORATION

OYSTER CREEK NUCLEAR GENERATING STATION

JUNE 21, 1984

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1.0 INTRODUCTION

1.1 Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect the available observations on an annual basis and evaluate licensee performance based on those observations with the objectives of improving the NRC Regulatory Program and Licensee performance.

The assessment period is February 1, 1983 to April 30, 1984.

1.2 SALP Board Members:

R. Starostecki, Director, Division of Project and Resident Programs
R. Vollmer, Director, Division of Engineering, NRR
R. Bellamy, Chief, Radiological Protection Branch, Division of Engineering and Technical Programs.
S. Ebneter, Chief, Engineering Programs Branch, Division of Engineering and Technical Programs.
J. Joyner, Chief, Nuclear Materials and Safeguards Branch, DETP
F. Miraglia, Assistant Director for Safety Assessment, Division of Licensing, NRR
J. Lombardo, Licensing Project Manager, Operating Reactor Branch No. 5, Division of Licensing, Office of NRR
E. Conner, Section Chief, Section 3B, Division of Project and Resident Programs
C. Cowgill, Senior Resident Inspector, Oyster Creek Nuclear Generating Station.

Other Attendees: J. Wechselberger, Resident Inspector, Oyster Creek Nuclear Generating Station.

1.3 Background

(1) Licensee Activities

At the beginning of the assessment period, the facility was operating at 239 MWe with load limited by core reactivity. The reactor was shutdown February 12, 1983 for the planned 1983 refueling and maintenance outage and has remained shutdown for this outage during the entire assessment period.

During the outage, 75 major modifications were scheduled for accomplishment. As of the end of the evaluation period, over 5000 individual maintenance activities have been completed. Some of the significant modifications and repair activities completed were:

- Repair of cracks in recirculation valve discs;
- Recirculation pump seal replacement;
- Feedwater system valve repairs;
- Reactor Protection System HFA relay replacement;
- Scram discharge volume modifications;
- Installation of plant computer and emergency response facility data system;
- Construction of site building for Technical Support Center;
- Torus modifications and painting;
- Installation of post accident sampling system and chemistry laboratory expansion;
- Intermediate range monitor range expansion (10 ranges);
- Addition of new cable spreading room; and
- Turbine inspection.

The licensee inspection of the core spray sparger and vessel annulus was completed in March 1983. The reactor recirculation piping was completed during the month of July 1983. No cracking identified in either system.

The licensee satisfactorily completed an annual emergency plan exercise on May 24, 1983. The exercise was observed by a Region I inspection team.

On June 6, 1983, an unusual event was declared when a chlorine leak occurred in the plant's chlorination system. The leak was isolated in eleven minutes. The unusual event was terminated following the satisfactory accountability of station personnel.

A fire occurred in the step down transformer for substation bus "A" on November 14, 1983. This resulted in a complete loss of offsite power. The fire brigade and local fire companies responded. The potential transformer was replaced and the electric plant was placed in a normal shutdown lineup.

An Intermediate Range Monitor (IRM) dry tube was discovered to be cracked in February. Additional inspection found a total of 8 dry tubes (7 IRM and 1 SRM) to be cracked. The facility has formulated replacement plans to be conducted prior to restart.

Twenty-seven crack indications have been found in the condensate and steam lines outside the dyrwell for the two isolation condensers. An inspection of the piping was conducted by the licensee as a result of discovering a leak in a condensate line during a system hydrostatic test. The licensee repair plans include pipe replacement and weld overlaying. These repairs will be completed prior to plant restart.

(2) Inspection Activities

A Senior Resident Inspector was assigned to the site for the entire assessment period. A second Resident Inspector was on site from February 1 to September 1, 1983 and since January 1, 1984.

Two team inspections were performed during the evaluation period. One team reviewed licensee actions in response to two consultant reports (BETA and RHR) and the 1982 INPO evaluation. A second team evaluated readiness for operations following the long refueling and maintenance outage. This team reviewed the modification process used to control outage work.

The total NRC Region I inspection hours (resident and region-based) for this assessment period is 3,643 hours.

2.0 SUMMARY OF RESULTS

OYSTER CREEK NUCLEAR GENERATING STATION

FUNCTIONAL AREAS	CATEGORY 1	CATEGORY 2	CATEGORY 3
1. Plant Operations and Outage Control	X		
2. Radiological Controls • Radiation Protection • Radioactive Waste Management • Transportation • Effluent Control and Monitoring	X		
3. Maintenance		X	
4. Surveillance (Including Inservice and Preoperational Testing)	X		
5. Fire Protection and Housekeeping		X	
6. Emergency Preparedness		X	
7. Security and Safeguards		X	
8. Outage Technical Support		X	
9. Licensing Activities		X	

Overall Assessment

This assessment is based on licensee performance during an extended refueling and modification outage. Major efforts were expanded by the licensee to upgrade plant equipment as well as perform modifications to plant systems. During the outage, about 75 modifications and over 5000 corrective maintenance items were performed in addition to required testing and inspection. Many nonroutine evolutions were performed and evaluation of these evolutions showed involvement by all site organizations including QA and QC. Overall activities were conducted in a technically competent manner.

In the area of Design Control a number of interface problems between the licensee and contract architect engineers were identified that had the potential for final designs to be inadequate. Additionally, constructability reviews during design needs improvement.

Overall, the licensee is devoting considerable resources to improve performance in all areas evaluated. Continued management attention to identifying and correcting weaknesses is apparent. Management commitment to safety is evident from commitment to training and high regard for stringent procedural adherence.

3.0 CRITERIA

The following performance aspects were reviewed in each area:

- Management involvement in assuring quality.
- Resolving technical issues from a safety viewpoint
- Responsiveness to NRC initiatives.
- Enforcement history.
- Reporting and analysis of reportable events.
- Staffing (including management).
- Training effectiveness and qualification.

To provide a consistent evaluation of licensee performance, attributes relating each aspect to the characteristics of Category 1, 2, and 3 performance were applied as discussed in NRC Manual Chapter 0516, Part II and Table 1.

The SALP Board conclusions were categorized as follows:

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 is being achieved.

Category 2: NRC attention should be maintained at normal levels. Licensee management attention and involvement in nuclear safety are evident; licensee resources are adequate and reasonably effective such that satisfactory performance with respect to operational safety is being achieved.

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 strained or not effectively used such that minimally satisfactory performance with respect to operational safety is being achieved.

4.0 PERFORMANCE ANALYSIS

4.1 Plant Operations and Outage Control (21%)

This assessment is based on inspection of plant operation activities by the resident inspectors and region based inspectors. The inspectors reviewed compliance with technical specification requirements, training requirements, quality assurance audits, corrective action systems, safety review committee actions, and reporting system controls.

Management control of the outage throughout this assessment has been very good. There was continued evidence of management involvement in daily plant activities including daily control room tours by operations and support group managers, daily meetings involving operations, maintenance, and engineering department representatives, and publication of planned activities (three day periods). Observation of shift turnovers indicated that even during periods of relatively low operational activity shift turnovers were thorough, comprehensive and professional. Additionally, site quality assurance reviewed all ongoing activities in the operations areas.

The licensee has well established policies governing plant operations. These policies were widely distributed and generally well understood by plant operators and supervisors. Managements approach to activities was generally conservative and strongly safety oriented.

Control of outage activities was enhanced by the issuance of a daily plan of activities and close coordination of the various departments activities by a daily outage meeting. Senior management involvement was evident in this process through the approval of all daily activity plans. Although overall control of activities was acceptable there were significant interface problems early in the outage including, in some cases, inadequate job planning. Coordination improved as the outage progressed but interfacing between departments continued to be one of the most significant outage problems. However, no resultant safety problems were identified.

Many operational activities conducted during the assessment period were in support of major outage activities. In most cases, these activities were nonroutine and were governed by special procedures written specifically for that activity. Examples include reactor vessel draining and refilling, and refueling the reactor vessel with the suppression pool empty. The procedures were conservative, had received thorough management review and required the performance of periodic management checks at critical stages. The licensee performed a formal refueling certification prior to start of reactor vessel refueling. The inspector's review of this certification showed it to be comprehensive and properly reviewed by the licensee.

Control of refueling activities has been good. Core off load was observed by the NRC and procedures were judged to be comprehensive and conservative. The inspector observed good supervisory control. Observations of new fuel inspections showed that persons performing the inspections were thorough, knowledgeable and conservative. One problem associated with fuel movement occurred when a fuel bundle was dropped a few feet to the bottom of the fuel storage pool rack. Licensee corrective actions included placing a camera on the fueling grapple to insure proper latching of the bundles. The inspection of fuel loading activities showed that personnel were well trained and properly supervised.

The licensee's response to abnormal conditions has been excellent. Early in the assessment period a chlorine leak resulted in declaration of an unusual event. Operator and station management response was prompt and thorough. In November, during a loss of offsite power, the licensee's response demonstrated [illegible]ir safety orientation and senior management involvement in site problems.

The Plant Operations Review Committee has been effective in reviewing safety issues. During the previous assessment period, a large backlog of items needing review was identified. The licensee augmented the review committee and conducted daily reviews until the backlog was reduced. Recent changes to the technical specifications have changed the review process and should help reduce future problems in this area. An additional technical specification change, involving the requirement to review temporary procedure changes within 14 days will require continued licensee attention since significantly more time than this has been required in some cases.

Licensee procedural control is acceptable. Inspector reviews showed that procedures are generally technically adequate and are capable of being performed as written. Some inadequacies have been identified by both licensee and NRC inspections involving missing valves in system valve checkoff lists. The missing valves were principally vent and drain valves. The licensee had, prior to NRC identification of the above problem, initiated a complete review of plant systems to verify accuracy of system components and drawings. This program includes verifying as built conditions for both mechanical and electrical systems and then correcting system checkoff lists. The program is scheduled to be completed by February 1985. One problem remains with regard to central control and accountability of temporary changes to procedures. Current procedures require that a log of temporary changes that are also to be made a permanent change be maintained in the control room. The inspector found no method of assuring that such temporary changes are maintained in a central location. Management attention to solve this problem was requested at the exit meeting.

Site Engineering support was well organized and adequately staffed. Engineering requests, from other groups were prioritized and tracked.

The inspector found that engineering evaluations were thorough and in most cases timely. Corporate plant engineering interfaces appear adequate but still require more coordination. The technical content of Licensee Event Reports (LER) continues to be excellent with good narrative descriptions, documentation of cause descriptions, and root cause determinations. Corrective actions are considered appropriate and well described. Timeliness of LER's continues to be a problem. A number of LERs have been submitted late and in some cases, extended periods of time pass before the decision is made that an event is reportable. Management attention to improve timeliness is necessary.

Site training programs for general employee access, operator training and engineering personnel were well established programs. The licensee expended considerable effort to upgrade all of the above programs. In particular site engineering personnel received significant system training. Also, operator requalification training has been upgraded as a result of the poor results achieved on the most recent licensee annual requalification examination.

Operator training for initial NRC license examinations has improved with 13 of 15 candidates for RO or SRO licenses passing during the reporting period. NRC examiners have been especially impressed with some SRO candidate performances on oral examinations. These examples demonstrate strong management support and attention to training and qualification.

Summary

During this assessment period, continued improvement has been observed in management control and review of operations function and site training activities. Substantial improvement has been noted in the chemistry area. Control of temporary changes and timeliness of event reporting continues to be a problem.

Conclusion

Category 1

Board Recommendations

Due to the length of the current outage, the Board recommends augment inspection coverage during plant startup. Maintain 16 hour coverage for about 4 weeks after startup. Return to normal coverage after that time.

4.2 Radiological Controls (9%)

There were seven routine inspections by radiation protection specialists during the assessment period. The Resident Inspectors on a continuing basis reviewed selected program areas. Two severity V violations were identified: one in effluent monitoring and one involving transportation. A continuing trend of improvement in the overall radiation safety program was noted this period. Significant improvements have been noted in plant chemistry.

4.2.1 Radiation Protection

The licensees performance during the refueling outage has been commendable. For instances, the use of a specially designed containments to enclose contaminated components on the refueling floor greatly improved contamination control allowing access into this area in street clothes. A training program has been developed for workers who install these containments as well as for personnel who work inside the enclosures. Similar uses of containments during routine operation has allowed a gradual reduction of the square footage of contaminated area in the plant.

All managers within the Radiological Controls (RC) Department are permanent GPUN employees. Contractor personnel are used for a limited number of technician and technician supervisor positions. Job descriptions and delineation of responsibilities is clear. The organization has been stable with minimal turnover and no reorganization. Within the RC Department the responsiveness to NRC initiatives has been prompt and thorough.

The Operational Health Physics technicians play a key role in the control of work during the outage. Their excellent performance is the result of extensive training and qualification provided on the site. Each technician must complete a program that is similar to a licensed position, i.e., classroom instruction, practical factors, written exams, oral exams and experience prerequisites.

Radiological engineering reviews all "unusual incidents" (Internal report of events involving radiological controls). Each incident report resolution receives senior level management concurrence. Enforcement of radiological controls is strict and violations usually result in strong disciplinary action.

The inspectors found that the training of Support Technicians, those who perform whole body counts, issue dosimetry, and test respirator users, was not formalized. The licensee has subsequently developed a program and standardized it throughout the GPUN system.

Several minor problems were noted with radiation protection procedures. These findings were considered to be isolated and not indicative of a programmatic problems.

4.2.2 Radioactive Waste Management

Examination of the licensee's plans for implementation of land disposal of radioactive waste regulations indicated that the licensee has a clear understanding of the requirements of the new regulatory requirements (10 CFR 61). The licensees implementation was timely and technically sound.

4.2.3 Transportation

The licensee has implemented a strong radioactive transport management organization. Procedures clearly define responsibilities and authorities of the Manager-Radwaste Operations and the Radwaste Shipping Supervisor. In addition, the responsibilities of other support groups are specified.

One transportation violation was identified involving failure to verify that the drain line and access plugs of a shipping cask were appropriately plugged and sealed prior to transport. The licensee immediately obtained confirmation that the package drain line and access plugs had been in compliance and implemented corrective actions to assure that future shipments would be in compliance. This violation was not considered indicative of programmatic defects.

A defined program of comprehensive training to key personnel involved in the transfer, packaging and transport of radioactive material is implemented as required. The review of the program indicates that the licensee is implementing a generally adequate and effective Radioactive Transportation Program.

4.2.4 Effluent Monitoring and Controls

Compared to the last assessment, the radio chemistry program has significantly improved. A new chemistry manager has been onsite for the entire evaluation period. Several additional persons have been added to the chemistry staff that have significant experience in radio chemistry. During this period, the licensee has revised all procedures and added internal laboratory QC controls. Significant improvements have been made in chemistry training and qualification. The licensee is constructing a new chemistry laboratory that should be in operation by October 1, 1984. On a quarterly basis, chemistry management now internally audits its own program in addition to the normal Quality Assurance division audits.

On two occasions, required sampling was not performed due to the controlling procedure failing to identify all Technical Specification required analyses. This was judged to be an isolated instance in an otherwise excellent program. There were five Licensee Event Reports (LER) concerning failure of the Standby Gas Treatment System (SGTS). Two failures were the result of design deficiency, one involved broken equipment, one involved improper post-maintenance testing and one failure involved a trip of one train of the SGTS sample pump while the other train was inoperable. Increased attention should be given to the overall integrity of the SGTS.

An LER was issued to report a January 1983 malfunction of a Chemical Waste Storage Tank level instrumentation which caused an unmonitored release of radioactive water outside the New Radwaste Building. The corrective actions, including periodic testing, seem adequate to prevent recurrence.

An overall improvement in the management of the radwaste area including chemistry was observed. New personnel have been hired to fill vacancies. There is adequate staff with clearly delineated responsibilities. Necessary data was available for evaluation of the program. Corrective actions, where necessary, were timely and acceptable. This was also observed in the transportation area during the November inspection. The licensee is attempting to improve the program and correct deficiencies.

Conclusion

Category 1

Board Recommendations

Following restart from the current refueling outage, return to routine inspection.

4.3 Maintenance (9%)

Inspection of maintenance activities during the outage consists of reviews by the residents primarily of inspection, overhaul and general improvement of the plant. Two specialist inspections reviewed maintenance activities when the refueling outage was just beginning. In addition, this area was reviewed during a team inspection late in the evaluation period.

Maintenance at Oyster Creek is performed by the Maintenance and Construction (M&C) Division which reports to a vice president at the corporate office. All maintenance personnel report to that division. Maintenance is requested by the Plant Division and reviewed for necessity and consistency by the Plant Materiel Department. This provides plant operations oriented review, approval, and control of maintenance activities and schedules. The organizational structure with its many interfaces requires close coordination between plant operations, plant engineering and maintenance and construction. While some improvements have been made to improve communications at the organizational interfaces, continual improvement in this area is necessary.

Administrative controls over maintenance were well established and contain provisions for prioritization depending on the activities complexity and urgency. Priorities were initially assigned by the initiator but were reviewed by both Plant Operations and Plant Materiel management. This assures proper prioritization and planning. In addition, the licensee established a procedure for performance and control of urgent work identified during off-normal hours. Daily meetings were conducted during the current refueling outage with both maintenance and representatives from all site organizations to coordinate activities. These meetings appear to be beneficial in keeping management appraised of on-going work. Procurement of safety related equipment was well controlled and documented. One minor violation regarding chemistry resins was identified but is not considered indicative of a program breakdown. Although procurement is acceptable, no current component level quality classification list exists. A licensee group has been formed to resolve this problem. Continued management attention in this area was evident by the numerous levels of review by both plant engineering and quality assurance.

Preventive maintenance (PM) is controlled by a separate group within Plant Materiel Department. Administrative controls are well defined and provide acceptable controls for the conduct of the program. The program is scheduled on both a yearly and weekly basis. NRC review identified that the schedules are comprehensive, reviewed frequently, and accurately reflect the status of the PM program. Checklists were technically accurate and periodically updated to reflect new information. PM tasks were performed by a dedicated group of technicians rotated periodically detailed from the M&C Department. One area associated with preventive maintenance requires some increased attention

When performing preventive maintenance work when engineering evaluation was required, plant engineering work requests were initiated to obtain that information. NRC observations indicate that once the information was requested, there was little followup by plant materiel to ensure timely response. This needs continued management attention.

There was evidence of routine involvement by QA in maintenance activities through post maintenance quality reviews, quality control hold and witness points of work in progress, quality assurance department observations of various maintenance activities.

The Plant Materiel Department reviews all completed maintenance work packages and has begun a trend analysis program. An initial review was performed by electrical maintenance. Their review was thorough and had substantive recommendations for improvements. NRC review indicates that recommendations had been appropriately acted upon. This was positive evidence of licensees aggressive approach to solving problems. Further improvements will be made when the review process is expanded to mechanical systems. Increasing senior management involvement in the recommended corrective actions is expected.

Five LER's, associated with electrical breaker maintenance problems, appear to be a relatively high number for this function. This data indicates the need for additional licensee attention in this area. Another LER involved identification of problems with torque switch settings on limitorque valves. This problem, identified by licensee personnel, was based on information received at a maintenance conference. Identification of this problem demonstrates sound technical analysis and aggressive corrective action. Additionally, the licensee has informed other utilities of this potentially generic nature of the problem prior to issuance of NRC documents.

Conclusion

Category 2

Board Recommendations

None.

4.4 Surveillance (15%)

This assessment is based on inspections of the surveillance program by the resident inspectors and by region based inspectors (four inspections of ISI activities).

The licensee controls the routine surveillance test program through issuance of annual master surveillance test schedules. They have administrative controls in place to modify surveillance tests as required by plant conditions and changes to Technical Specifications. Management involvement in review of both test schedules and test results is evident. During this evaluation period, one problem was identified regarding acceptance criteria for a fire pump. Licensee management used this opportunity to review all surveillance tests to ensure technical adequacy and compliance with Technical Specifications. The inspector found surveillance procedures technically adequate, tests conducted on time and results receive proper reviews. The plant engineering staff, responsible for maintaining status of complete surveillances, fell behind in record keeping. This was corrected by reassigning reviews and increasing senior management review. Additionally, the licensee foresees significant improvements when the plan to computerize the surveillance test program is completed.

Successful accomplishment of the leak rate testing program had been a problem in the previous assessment. Inspector review during this period indicates significant improvement. Observations indicate that test procedures have been reviewed and upgraded and the personnel performing tests were knowledgeable of test requirements. Review of the completed test results was performed timely and thoroughly.

Management oversight of the Inservice Inspection and Inservice Test programs appears strong. Administrative controls were found to be well developed including scheduling of activities and assigning proper authority and responsibility for program accomplishments. Appropriate feedback mechanisms were in in place to monitor program performance. Appropriate QA interfaces were evident and technician training was good.

During this outage, significant inservice testing and inspection has been conducted as discussed further in Section 4.8.

Conclusion

Category 1

Board Recommendation

None.

4.5 Fire Protection and Housekeeping (2.5%)

The assessment of performance in the fire protection and housekeeping areas are based on inspections by the resident inspectors.

Site fire protection activities are supervised by a full-time assigned individual with responsibility for overall program accomplishment. A dedicated staff is assigned to conduct preventive maintenance and surveillance testing of fire fighting equipment to ensure centralized control of these activities.

The licensee has established a comprehensive fire protection training program. A review of this program identified implementation problems regarding lecture attendance and timely makeup of missed lectures by the fire brigade members. Licensee corrective action for this problem included requiring all brigade personnel to attend scheduled or makeup lectures and to take examinations to ensure that training was adequate.

There has been considerable effort by both NRC and the licensee to attempt to resolve issues involved with fire protection regulations (10 CFR 50, Appendix R). Currently, the licensee has requested 19 technical exemptions and 13 schedular exemptions to these requirements. These requests are presently under review by NRR.

The licensee has continued to exert significant management attention to housekeeping during this assessment period with the plant in a major refueling and modification outage. Routine tours are made by senior station management to identify and correct housekeeping problems. When conditions became degraded, management has taken aggressive action to improve housekeeping including one occasion when all outage related work was stopped for three days to perform plant cleanup. Although continued emphasis is placed on housekeeping, general worker attitude in this area remains somewhat low.

Radiological housekeeping was viewed to be adequate considering the activity in the plant. Continued attention to contamination control is evidenced by the efforts to decontaminate areas as soon as practicable after completion of activities causing the area contamination. There remains certain contaminated and high radiation areas that require continued attention.

Conclusion

Category 2

Board Recommendations

None.

4.6 Emergency Preparedness (18%)

Analysis in this area is based on observation of the Annual Exercise by the NRC team, three followup inspections by region based inspectors, and observations of plant training exercises by the resident inspectors.

During the annual exercise on May 10, 1983, the licensee demonstrated adequate capability to perform a complicated simulated plant emergency. Although NRC observation of this exercise identified that a substantial improvement was made over the 1982 exercise, a number of deficiencies (most of which were also identified by the licensee) were noted in operational assessment, training, scenario preparation, information flow, dose assessment, and radiation protection evaluation. Continued senior level management attention to emergency planning is evident in that a full time manager is assigned at the site with sufficient staff support. Licensee maintains a three section emergency response rotation and conducts periodic shift and site drills to maintain personnel proficiency between annual exercises. During this evaluation period, specific training was conducted for senior level managers in accident assessment.

The emergency plan and procedures continue to be adequate. Licensee has put forth a large effort to revised emergency procedures to streamline them. One example is a proposed shift of classification of emergency to symptom based approach to conform with emergency operating procedures used by Operations Department personnel.

A number of items remain open (principally associated with Post Accident Sampling Systems) from the emergency appraisal conducted in January, 1982. Licensee progress towards correction of the remaining items is satisfactory. During this assessment, the licensee committed to complete the post-accident sampling system prior to October of 1984. Additionally, a new Technical Support Center is being constructed and will be available about September 1, 1984.

The improved performance noted in 1983 over the 1982 drill was not continued in the licensee's performance of the May 10, 1984 exercise. Although outside this assessment period, deficiencies in communication, EOF environmental data coordination and presentation, and licensee/external agency interfaces were noted.

Conclusion

Category 2

Board Recommendation

None.

4.7 Security and Safeguards (1.5%)

One regional physical protection inspection and routine resident inspections during the first half of the assessment period identified a total of six physical security violations (including one Severity Level III violation for which a civil penalty was assessed). The violations and other deviations reflected a lack of adequate management attention to implementation of security program requirements and first line supervisory performance. The need for increased management attention to preparation for the major modification and refueling outage work coupled with a marginal audit/surveillance program in the physical security area may have contributed to the program's degradation. An enforcement conference was held in April 1983 to discuss the problem. The licensee's corrective action, which included a reorganization of onsite and corporate security management to effect more direct management involvement in the program and an improved quality assurance auditing program in the security area, was prompt and appears to have been effective. Subsequent routine resident inspections and a regional physical security inspection identified no violations during the second half of the assessment period. However, a deviation from the licensee's commitment to correct one of the previous violations by July 1983 was cited in August 1983. The corrective action was completed later that month.

The training and qualification program resulted in a satisfactory level of job knowledge and adherence to procedures in most cases. It is well defined and carried out by dedicated personnel. The security force staffing level was adequate throughout the period, especially considering the increase in the normal work force as a result of the outage. The position of Site Security Supervisor, which had been filled in about January 1983, was left vacant in July 1983 by the death of the incumbent. The position was again filled in September 1983 by a very qualified and experienced individual. This is indicative of the licensee's resolve to improve their performance in this area.

Analyses and reporting of events are complete and prompt as are corrective actions. Seven event reports were submitted during the assessment period.

Conclusion

Category 2

Board Recommendations

None.

4.8 Outage Technical Support (24%)

Assessment in this area is based on region based and resident inspector review of outage work and a team inspection of the licensee's modification process, performed at the end of the assessment period.

During this outage, significant inservice testing and inspection has been conducted. Licensee management attention in this program was evident as demonstrated by corporate requalification of all contract personnel used to perform testing and use of licensee personnel to supervise and perform final reviews of test data. The overall performance of inservice testing was satisfactory.

The licensee performed NDE testing on recirculation system piping for intergranular stress corrosion cracking. During Region I review of this testing, a number of problems with licensee's plotting and evaluation of test data was found. Additionally, the testing was not adequate to determine whether any cracking was present. After conversations and meetings between NRC and Senior Management, the licensee performed additional data evaluation and testing. No crack indications were identified during these activities. Late in the period, similar NDE testing on isolation condenser piping was performed. NRC review of test results identified substantial improvement in data reduction and evaluation.

Major modifications were made during the outage to upgrade plant design and meet new regulatory requirements. Several modifications such as complete replacement of all control room alarm panels were installed to aid operator performance. NRC review of licensee control of the modification process has shown a conservative approach to the resolution of technical issues. Administrative controls associated with modification, construction, testing, and plant staff acceptance are good.

The licensee's system for implementation of planned modifications is adequate. Modifications installation is performed under the control of Maintenance and Construction Division (M&C). Significant portions of the work is then performed by contract organizations. Appropriate QC hold and witness points are inserted in installation procedures and quality assurance observation of activities in progress are routinely observed. Inspector observations did, however, identify problems associated with construction in the areas of procedure change control, welding, and hanger installation associated with Appendix J and Scram Discharge Volume Modifications. Licensee resolution of these concerns is not complete at the end of this assessment period.

Although general control of the modification process has been acceptable, a number of problems associated with design control of modifications has been observed. The licensee's Technical Functions Division has not always advised contractor architect engineers of changes to propose modifications being designed by the contractor. This led to some inadequate review of design changes. In some cases changes were made to contractor design packages without review by the original designer. The licensee initiated a review by corporate QA, at NRC request, to determine if outage modifications meet design criteria. The results of this review will be evaluated by NRC Region I in the near future. Additionally, during installation, several modifications required a significant number of design changes. Examples included Appendix J modifications and the scram discharge volume modifications. In one cases, a task force was formed to review and solve associated problems with installation. These problems, in many cases were the result of poor constructability reviews by Technical Functions. Additionally the licensee did not have a limit on the number of design changes that could be made prior to revising the original design document. Although no installation errors have been identified as a result, the potential for installation errors exists.

Conclusion

Category 2

Board Recommendations

The licensee should be requested to address the interface problems that exist between the licensee and contract engineers performing design work. Inspection of followup corrective actions should be planned.

4.9 Licensing

Evaluation in this area is based on review of the licensee's activities in the area of methodology and Cycle 10 reload, Radiological Effluent Technical Specifications (RETS), Core Spray Effectiveness, NUREG-0737 responses, Systematic Evaluation Program (SEP), fire protection review, valve operability, and equipment qualification.

The licensee's performance and management capabilities were generally adequate. The licensee and his contractors have demonstrated good working knowledge of regulatory requirements and excellent levels of technical competence. Management attention and involvement with specific matters of safety is evident, licensee resources are adequate although staffing in various areas should be improved, and satisfactory performance with respect to operational safety is being achieved.

While the licensee provides generally sound and acceptable resolution to the licensing issues, frequent extensions of time are required. Considerable NRC effort and repeated submittals are needed to adequately cover the material to be reviewed. The timeliness of responses was poor with two or three month time delay in responses being the norm. These problems were especially noted in submittals for SEP, RETS, NUREG-0737, TS, and fire protection topics.

Conclusion

Category 2

Board Recommendations

The licensee should be requested to address the adequacy of the corporate engineering support provided to the plant in regards to the content and timeliness of licensing submittals. An adverse trend has been noted, particularly in the areas of SEP and fire protection topics.

5.0 SUPPORTING DATA AND SUMMARIES

5.1 Licensee Event Reports

Tabular Listing		Licensee Event Reports
Type of Events:		
A.	Personnel Error	5
B.	Design/Man./Const./Install.	7
C.	External Cause	0
D.	Defective Procedure	2
E.	Component Failure	6
X.	Other	7
	TOTAL	27

Licensee Event Reports Reviewed: 83-01 through 83-26 and 84-01, 02 and 05 excluding Security Event Reports.

Causal Analysis:

Four sets of common mode events were identified:

a. LER's 83-7, 83-15, 83-25, and 83-26 identified events in which incorrect or inadequate procedures contributed to the event.

b. LER's 83-10, 83-12, and 83-14 involved design deficiencies. Two LER's identified deficiencies with the standby gas treatment system.

c. LER's 83-4, 83-8, 83-15, 83-20 and 84-2 involved electrical breaker maintenance problems.

d. LER's 83-6, 83-7, 83-10, 83-11, and 83-14 pertained to the standby gas treatment system. These can be further classified as follows; 2 LER's involved design deficiencies and 2 LER's involved sensing line failures. The relatively large number of problems identified in standby gas treatment may indicate the need for a complete system review.

5.2 Investigation Activities:

None.

5.3 Escalated Enforcement Actions:

a. Civil Penalties - (83-07) $40,000: for violations of the physical security plan.

b. Orders: None.

c. Confirmatory Action Letters: None

5.4 Management Conferences:

Enforcement meeting - 4/18/83: regarding physical security plan violations.

SALP meeting (5/12/83): meeting to discuss Cycle 2 SALP performance.

TABLE 1

TABULAR LISTING OF LERs BY FUNCTIONAL AREA

OYSTER CREEK NUCLEAR GENERATING STATION

AREA	NUMBER/CAUSE CODE					TOTAL
Plant Operation and Outage Control	2A	1B		2E		5
Radiological Controls			1D			1
Maintenance	2A	1B		1E	3X	7
Surveillance		3B	1D	2E	4X	10
Fire Protection						
Emergency Preparedness						
Security and Safeguards						
Outage Technical Support	1A	1B				2
Licensing Activities						
Other		1B		1E		2
				Total		27

Cause Codes:
- A - Personnel Error
- B - Design, Manufacturing, Construction or Installation Error
- C - External Cause
- D - Defective Procedures
- E - Component Failure
- X - Other

TABLE 2

LER SUMMARY

OYSTER CREEK

FEBRUARY 1, 1983 to APRIL 30, 1984

LER NUMBER	SUMMARY DESCRIPTION
83-03/03L	During the performance of maintenance on two "A" control rod drive pump, a vent line was broken. This resulted in the wet-down of a core spray pump and the inadvertent tripping of the "B" control rod drive pump. The "B" pump was immediately restarted.
83-04/03L	Control rod drive pump circuit breaker failure to operate.
83-05/03L	Three high drywell pressure switches tripped at a value greater than specified.
83-06/03L	Low flow switch for standby gas treatment system fan failed preventing system valves from closing.
83-07/03L	Standby gas system declared inoperable due to plugging of HEPA filter. Identified during surveillance testing.
83-07/03X-1	Subsequent evaluation of LER 83-07/03L revealed an improperly installed pitot tube on flow sensing line.
83-08/03L	Core spray booster pump was found to be inoperable due to installation of an incorrect undervoltage trip coil.
83-09/01T	Main steam isolation valves A and B failed to meet local leak rate test acceptance criteria.
83-10/01T	Discovery of a design deficiency in the standby gas treatment system which prevented inlet and outlet valves from closing when the fan breaker is racked out.
83-11/03L	Standby gas treatment system flow switch failed due to a damaged sensing line.
83-12/01T	Violation of secondary containment due to trunnion room door being open identified during refueling surveillance check-off.
83-13/01T	Violation of secondary containment due to both doors of a reactor building personnel access airlock being open for approximately 30 seconds.

LER NUMBER	SUMMARY DESCRIPTION
83-14/01T	Discovery of a design deficiency in the standby gas treatment system. Heating coils for both trains supplied power from same emergency bus.
83-15/03L	Failure of a reactor building closed cooling water circuit breaker due to improper performance of maintenance which incapacitated an undervoltage trip device.
83-16	Not issued.
83-17/01P	Design deficiency in both diesel generator timing relays.
83-18/03L	Reactor building isolation valve failed to close due to air operator dirt blockage.
83-19/03L	Reactor building isolation valve failed to close due to air operator piston break.
83-20/03L	Failure of service water pump circuit breaker due to a burr on the trip latch.
83-21/03L	Failure of power feed from emergency diesel generator due to ground fault on power feed.
83-22/03L	Two mechanical snubbers found to be inoperable during testing.
83-23	Not issued.
83-24/01T	Limitorque motor operator torque switch settings below original settings.
83-25/03L	Six maintenance and two surveillance procedures did not specify verifying excess flow check valves open.
83-26/01T	Fuel pool cooling heat exchangers no longer meet seismic requirements due to addition of lead for shielding.
84-001	Diesel fuel oil level less than technical specification required level.
84-002	Failure of circuit breaker undervoltage trip devices.
84-005	A through-wall crack was discovered on the isolation condenser piping during a system hydrostatic test.

TABLE 3

VIOLATIONS (2/1/83-4/30/84)

OYSTER CREEK NUCLEAR GENERATING STATION

A. Number and Severity Level of Violations

1. Severity Level

Severity Level I	0
Severity Level II	0
Severity Level III	1
Severity Level IV	13
Severity Level V	5
TOTAL	19

B. Violations vs. Functional Area

FUNCTIONAL AREAS	Severity Levels I	II	III	IV	V
Plant Operations					
Radiological Controls					2
Maintenance				1	
Surveillance				1	1
Fire Protection				1	
Emergency Preparedness					
Security and Safeguards			1	6	1
Refueling Outage				4	1
Licensing Activities					
TOTALS			1	13	5

TOTAL VIOLATIONS: 19

TABLE 4

INSPECTION HOURS SUMMARY (2/1/83-4/30/84)

OYSTER CREEK NUCLEAR GENERATING STATION

	HOURS	% OF TIME
Plant Operations	757	21
Radiological Controls	325	9
Maintenance	307	9
Surveillance	535	15
Fire Protection/Housekeeping	90	2.5
Emergency Preparedness	640	18
Security and Safeguards	59	1.5
Refueling	933	24
Licensing	No data available	
TOTAL	3646	

TABLE 5

INSPECTION REPORT ACTIVITIES

OYSTER CREEK NUCLEAR GENERATING STATION

REPORT NO. AND INSPECTION DATES	INSPECTOR	AREA INSPECTED
83-03 2/7/83-2/18/83	Specialist	Emergency Preparedness Items
83-04 2/1/83-3/7/83	Residents	Routine Resident Inspection
83-05 2/14-18, 3/1-4, 3/24, 3/28, 1983	Specialist	ISI Activities
83-06 2/22/83-2/25/83	Specalist	Maintenance, surveillance calibration activities.
83-07 3/14/83-3/17/83	Specialist	Security Plan and Implementing Procedures
83-08 3/8/83-4/4/83	Residents	Routine Resident Inspection
83-09 3/16/83-3/18/83	Specialist	Public Prompt Notification System
83-10 4/6/83-4/8/83	Specialist	Implementation of radiation protection program
83-11 4/5/83-5/2/83	Resident	Routine Resident Inspection
83-12 4/18/83	Specialist	Enforcement Conference Physical Security Program
83-13 5/11/83-5/12/83	Specialist	Design review of plant shielding
83-14 5/3/83-6/8/83	Residents	Routine Resident Inspection

REPORT NO. AND INSPECTION DATES	INSPECTOR	AREAS INSPECTED
83-15 5/23/83-5/25/83	NRC Team and Residents	Emergency Preparedness Inspection
83-16 8/23/83-8/26/83	Specialist	Security System Power Supply/Training/Security
83-17 6/9/83-7/13/83	Residents	Routine Resident Inspection
83-18 7/11/83-7/15/83	Specialist	Effluent control and Radioactive Waste program
83-19 7/12/83-7/15/83	Specialist	Stress corrosion cracking and welding activities
83-20 7/14/83-8/17/83	Residents	Routine Resident Inspection
83-21 7/19,25,26/83	Specialist	Ultrasonic data during weld examinations
83-22 8/18/83-9/21/83	Residents	Routine Resident Inspection
83-23 9/22/83-11/7/83	Resident	Routine Resident Inspection
83-24 10/12,17-21,27/83	Specialist	Review of QA Program, QC Surv, drawings, procedures, instructions and work observ.
83-25 10/17/83-10/21/83	Specialist	Licensee's radiation protection and effluent control program
83-26 11/7/83-12/31/81	Resident	Routire Resident Inspection
83-27 11/29/83-12/2/83	Specialist	Trans. activities - radioactive waste mgmt programs
83-28 12/12-15/83	Specialist	Radioactive waste program

REPORT NO. AND INSPECTION DATES	INSPECTOR	AREAS INSPECTED
84-01 1/1-1/13/84	Resident	Routine
84-02 1/16-20/84	Specialist	Licensee's radiation protection program.
84-03 2/1-3/15/84	Resident	Routine
84-04 2/7-10/84	Specialist	Licensee's inservice inspection program.
84-05 2/21-24/83	Specialist	Emergency preparedness items
84-06 3/12-16/84	Resident/ Specialist (RHR/BETA Team Inspec)	Licensee's organization and program implementation in maintenance, training and procedural controls.
84-07 3/9-10/84	Specialist/ Resident	Inspection of activities associated with torus shell thickness
84-08 3/7/84	Specialist	Radiological control incident review.
84-09 3/26-30/84; 4/2-3/84	Residents/ Specialist	Readiness Assessment Team Inspection of modifications, evaluating the design, construction/installation, inspection, testing and acceptance for operation modifications.
84-10 3/16-4/30/84	Resident/ Specialist	Routine resident inspection and specialist review of isolation condenser cracks.

TABLE 6

ENFORCEMENT DATA

OYSTER CREEK NUCLEAR GENERATING STATION

INSPECTION NUMBER	SUBJECT	REQ.	SEV.	AREA
83-04	Failure to X-ray or physically search hand carrier package brought through a protected area portal.	Provisional operating license DPR-16	IV	7
83-04	Failure to ensure continuous surveil- of an escorted person.	Tech Spec 6.8.1	IV	7
83-04	Failure to ensure material important to safety and traceable quality assur- ance documentation.	10CFR50	IV	3
83-07	Failure to notify the commission of a change to the security plan; failure to maintain an effective protected area barrier; failure to record intrusion alarms.	Accepted Security Plan	III	7
83-07	Failure to observe an isolationzone with CCTV	Accepted Security Plan	IV	7
83-07	Failure to guard and control access to vital areas.	Accepted Security Plan	IV	7
83-07	Failure to maintain a protected area barrier height.	Accepted Security Plan.	V	7
83-08	Violation of physical security plan.	Provisional operating license DPR-16.	IV	7
83-20	Failure of an individual to properly use protective clothing.	Tech. Spec 6.8.1	V	2

INSPECTION NUMBER	SUBJECT	REQ.	SEV.	AREA
83-20	Violation of physical security plar	Provisional operating license DPR-16	IV	7
83-23	Failure to provide hourly fire watch while the fire door between tne diesel generator bays were fouled.	Tech Spec	IV	5
83-24	Failure to translate design basis items into specifications, drawings, procedures and instructions.	10CFR50	V	6
83-25	Failure to analyze a monthly liquid effluent discharge batch for tritium.	Tech Spec 4.6.B.2.C	V	4
83-26	Failure of a surveillance procedure to to identify the development of an inadequate pump head pressure.	Tech Spec 6.8.1	IV	4
83-27	Failure to verify drain line and access plugs were properly sealed prior to transport.	10CFR71.12	V	2
84-09	Failure to review design change commensurate with original design; failure to incorporate design changes and regulatory requirements into specification, drawings, procedures and instructions.	10CFR50 APP B	IV	8
84-09	Failure to prescribe and accomplish quality installations.	10CFR50 APP B	IV	8
84-09	Failure to adequately control design information.	10CFR50 APP B	IV	8
84-09	Failure of QC inspections to verify conformance of construction activities.	10CFR50 APP B	IV	8

DEVIATION

83-16	Failure to meet a commitment to the commission concerning physical security.			

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

Docket No. 50-219

JUL 20 1983

GPU Nuclear Corporation
ATTN: Mr. P. B. Fiedler
Vice President and Director
Oyster Creek Nuclear Generating Station
P. O. Box 388
Forked River, New Jersey 08731

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP) Report and your letter dated June 17, 1983

This refers to the SALP for the Oyster Creek Nuclear Generating Station conducted by this office on April 19, 1983 and discussed with your staff at a meeting on May 12, 1983. A list of attendees at the meeting is presented in Enclosure 1. The NRC Region I SALP Report is attached as Enclosure 2. This report evaluates the period February 1, 1982 through January 31, 1983 and any significant findings from the three month gap from the previous assessment period. Our letter dated April 29, 1983 which forwarded the SALP Report, and your letter dated June 17, 1983, which provides your actions and comments regarding the SALP Report, are attached as Enclosures 3 and 4.

Overall, your performance in the operation of the facility was found acceptable. During the meeting of May 12, 1983, we discussed our assessment of your regulatory performance in each of nine functional areas. Some of your comments at the meeting and in your June 17, 1983 letter address improvements in the backlog of items needing Plant Operations Review Committee attention, formalization of administrative procedures governing interfaces between divisions, improvements in the radiochemistry program, steps to improve quality of work and knowledge of maintenance department personnel, and improvement in procedures and administrative control of the integrated leak rate test. We believe your actions to be responsive and will improve future performance.

With regard to the statement in your June 17, 1983 letter which points out a design error as opposed to procedural inadequacies during the integrated leak rate test caused radioactive contamination of a portion of the reactor building service air system, we agree and have modified our report to correct the error.

In addition, as noted at the meeting, we concur that deficiencies in your radiochemistry program were identified in two functional areas of the report. To correct this we have amended Pages 7, 8, and 10 of our report. The amended pages are inserted preceding the original pages of the report.

In accordance with 10 CFR 2.790(a), a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

8307280431 3pp.

No reply to this letter is required. Your actions in response to the NRC Systematic Assessment of Licensee Performance will be reviewed during future NRC inspections.

We believe that our May 12, 1983 meeting was beneficial and improved mutual understanding of your activities and our regulatory program. Your cooperation with us is appreciated.

Sincerely,

Thomas E. Murley
Regional Administrator

Enclosures:
1. SALP Management Meeting Attendees
2. NRC Region I SALP, GPU Nuclear Corporation, Oyster Creek Nuclear Generating Station
3. NRC Letter, R. W. Starostecki to P. B. Fiedler dated April 29, 1983
4. GPU Nuclear Corporation Response Letter, P. B. Fiedler to R. W. Starostecki dated June 17, 1983

cc w/encls:
M. Laggart, Licensing Supervisor
J. Knubel, BWR Licensing Manager
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of New Jersey

bcc w/encls:
Region I Docket Room (with concurrences)
Senior Operations Officer (w/o encls)
DPRP Section Chief
K. Abraham (2 copies)

ENCLOSURE 1

U.S. NUCLEAR REGULATORY COMMISSION SALP
MANAGEMENT MEETING ATTENDEES

Licensee: GPU Nuclear Corporation
Facility: Oyster Creek Nuclear Generating Station
Meeting At: Forked River, New Jersey
Meeting Conducted: May 12, 1983

Licensee Attendees

M. Budaj, Manager, Plans and Programs
J. T. Carroll, Director, Startup and Test
P. R. Clark, Executive Vice President, GPU Nuclear Corp.
R. D. Fenton, Oyster Creek Emergency Preparedness Manager
P. Fiedler, Vice President and Director, Oyster Creek
E. J. Growney, Safety Review Manager
R. W. Heward, Vice President - Radiolo ical and Environmental Control
D. Klucsik, Manager, Communication S vice, Oyster Creek
J. Knubel, Manager, BWR Licensing
M. Laggart, Oyster Creek Licensing Manager
R. L. Long, Vice President, Nuclear Assurance
J. P. Maloney, Manager, Plant Material
F. F. Manganaro, Vice President and Director, Maintenance and Construction
R. S. Markowski, QA Oyster Creek Audit Manager
F. J. Maughan, Plant Security Supervisor, Oyster Creek
W. J. Smith, Plant Engineering Director
J. L. Sullivan, Plant Operations Director
J. R. Thorpe, Director, Licensing and Regulatory Affairs
C. R. Tracy, Manager, Oyster Creek QA MOD/OPS
D. W. Turner, Manager, Radiological Controls

NRC Attendees

R. R. Bellamy, Chief, Radiological Protection Branch, Division of Engineering and Technical Programs
E. L. Conner, Chief, Reactor Projects Section 3B, DPRP
C. J. Cowgill, Senior Resident Inspector, Oyster Creek
D. Crutchfield, Chief, Operating Reactors Branch #5, Division of Licensing, NRR
R. R. Keimig, Chief, Projects Branch #3, Division of Project and Resident Programs
J. J. Lombardo, Licensing Project Manager, Operating Reactors Branch #5, Division of Licensing, NRR
R. W. Starostecki, Director, Division of Project and Resident Programs (DPRP)
L. E. Tripp, Chief, Reactor Projects Section 3A, DPRP

Enclosure 2

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

GPU NUCLEAR CORPORATION

OYSTER CREEK NUCLEAR GENERATING STATION

APRIL 19, 1983

8307280435 36 pp

I. INTRODUCTION

a. Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect the available observations on an annual basis and evaluate licensee performance based on those observations with the objectives of improving the NRC Regulatory Program and licensee performance.

The assessment period is February 1, 1982 through January 31, 1983. This assessment, however, contains pertinent observations and NRC and licensee activities through February 1983.

The prior SALP assessment period was November 1, 1980 - October 31, 1981. Significant findings of this assessment and the period between the previous assessment and this assessment are provided in the applicable Performance Analysis Functional Areas (Section IV).

Evaluation criteria used during this assessment are discussed in Section III. Each criterion was applied using the "Attributes for Assessment of Licensee Performance" contained in NRC Manual Chapter 0516.

b. SALP Board Members:

- R. W. Starostecki, Director, Division of Project and Resident Programs
- R. R. Keimig, Chief, Projects Branch No. 2, Division of Project and Resident Programs
- R. R. Bellamy, Chief, Radiological Protection Branch, Division of Engineering and Technical Programs
- L. E. Tripp, Chief, Reactor Projects Section 2A, Division of Project and Resident Programs
- J. J. Lombardo, Licensing Project Manager, Operating Reactors Branch No. 5, Division of Licensing, Office of NRR
- C. J. Cowgill, Senior Resident Inspector, Oyster Creek Nuclear Generating Station

Other Attendees:

- J. A. Thomas, Resident Reactor Inspector, Oyster Creek Nuclear Generating Station

c. Background

(1) Licensee Activities

At the beginning of the assessment period, the facility had been in cold shutdown since December 9, 1981 to investigate the failure of an isolation condenser valve. The valve failure was caused by stem nut cracking and stem damage resulting from the practice of electrically backseating the valve to prevent packing leakage. Other valves with Limitorque Operators that had been frequently backseated were found to have similar damage and were repaired. Valve repairs were completed by the end of January 1982, but the plant remained shutdown to replace leaking coolers on the diesel generators and to complete surveillances which Technical Specifications required to be done each refueling outage (but at intervals of no more than 20 months).

The licensee satisfactorily completed an annual emergency plan exercise on March 16, 1982. The exercise was observed by teams from NRC and FEMA.

The plant began operating on April 12, 1982 but scrammed on April 13 when operator error caused inadvertent closure of the Main Steam Isolation Valves. The plant was restarted that day, however, a controlled shutdown was performed the following day to repair steam leaks on a main steam reheater pressure regulating valve. Operation resumed on April 15, but the reactor scrammed on April 17, 1982 when a flooded offgas delay pipe caused a loss of condenser vacuum. The plant was restarted on April 18 and operated at 60 to 70 percent power, limited by one of three condensate pumps being out of service.

The plant continued to operate at reduced power until shutdown on May 23, 1982 to repair a steam leak on a steam reheater manway cover gasket. Operation limited to 60 - 70 percent power was resumed on May 27.

The plant scrammed after a high reactor water level turbine trip on June 4, 1982, while attempting to fill the reactor water cleanup system. The plant was restarted on June 5, with all three condensate pumps available for operation. However, the plant remained at a reduced power of about 80 percent because of fuel depletion. The plant continued to operate in "coastdown."

The plant was shutdown on August 13, 1982 to investigate the cause of high differential pressure across the salt water side of the containment spray heat exchangers. Extreme fouling by marine life debris was found on the tube sheets of all four heat exchangers. The heat exchangers were cleaned and the plant went back on line at reduced power on August 29.

The licensee underwent an audit by the Institute of Nuclear Power Operations (INPO) between October 25 and November 4, 1982. NRC (Region I) representatives did not attend the INPO debriefing and a report of their findings was not yet issued at the time of this assessment.

On November 24, 1982, high seal cavity temperature caused by pump seal degradation forced the removal of the 'A' reactor recirculation pump from service. Continued leakage of the seal forced a reactor shutdown on December 10 to replace the seal. Restart was begun on December 13 with all five recirculation pumps operating normally. During startup, a high flux scram occurred while in the intermediate range. During restart from the trip, the reactor was manually scrammed when water hammer occurred in the feed water piping. On December 18, 1982, the reactor again scrammed due to low reactor water level caused by valve oscillations when placing the reactor water cleanup system in service. Power operation was resumed on December 21, 1982.

On December 21, 1982, operator error caused initiation of the containment spray system. One pump ran for about 30 seconds injecting cooling water into the drywell air space. Electrical checks of components in the drywell showed no abnormalities and power operation continued.

At the end of the assessment period, the facility was operating at about 50 percent power in coastdown with an 11 month refueling outage scheduled to begin in mid-February 1983.

(2) Inspection Activities

One NRC resident inspector was assigned to the site for the entire assessment period. A senior resident inspector was assigned periodically from April through July 1982, and permanently from August through the end of the assessment period.

Total NRC Inspection Hours: 2435 (Resident and region based). Distribution of inspection hours is shown in Table 3.

A tabulation of inspection activities is shown in Table 4, and a tabulation of enforcement data is shown in Attachment 1.

An emergency response appraisal team inspection was conducted in January 1982 prior to the beginning of the assessment period, and a team evaluation of the licensee's annual emergency drill was performed in March 1982.

TABLE OF CONTENTS

TABLES

ATTACHMENTS

II. SUMMARY OF RESULTS

OYSTER CREEK NUCLEAR GENERATING STATION

FUNCTIONAL AREAS	CATEGORY 1	CATEGORY 2	CATEGORY 3
1. Plant Operations		X	
2. Radiological Controls ° Radiological Protection ° Radioactive Waste Management ° Transportation ° Effluent Control and Monitoring		X	
3. Maintenance		X	
4. Surveillance (Including Inservice and Preoperational Testing)		X	
Fire Protection and Housekeeping		X	
6. Emergency Preparedness		X	
7. Security and Safeguards	X		
8. Refueling/Outage Activities		X	
9. Licensing Activities		X	

III. CRITERIA

The following performance aspects were reviewed in each area:

1. Management involvement in assuring quality.
2. Resolving technical issues from a safety viewpoint.
3. Responsiveness to NRC initiatives.
4. Enforcement history.
5. Reporting and analysis of reportable events.
6. Staffing (including management).
7. Training effectiveness and qualification.

To provide a consistent evaluation, attributes relating each aspect to the characteristics of Category 1, 2, and 3 performance were applied as discussed in NRC Manual Chapter 0516, Part II and Table 1.

The SALP Board conclusions were categorized as follows:

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 is being hieved.

Category 2: NRC attention should be maintained at normal levels. Licensee management attention and involvement in nuclear safety are evident; licensee resources are adequate and reasonably effective such that satisfactory performance with respect to operational safety is being achieved.

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 strained or not effectively used such that minimally satisfactory performance with respect to operational safety is being achieved.

IV. PERFORMANCE ANALYSIS

1. Plant Operations (40%)

Analysis of this area includes direct observation of plant operational activities and operational support activities. The operations area was under continual review by the resident inspectors supplemented by region-based inspectors. Inspections examined compliance with license and procedural requirements, design changes and modifications, training, housekeeping, quality assurance, audits, corrective action systems, safety review committees, and reporting systems.

During the assessment period, improvement was noted in the area of operator awareness of plant conditions, knowledge of technical specifications, and operators' attention to detail. In general, operator response to transient and abnormal conditions was good. However, when other than normal system alignments did not require immediate operator action, operators were sometimes not fully aware of all the potential safety concerns and did not always aggressively pursue correction of the problems that caused the unusual alignment. There were deficiencies noted in the adequacy and formality of control room shift turnovers, but observations later in the assessment period indicated significant improvement. A main steam isolation valve closure scram and an inadvertent containment spray actuation were caused by operator error resulting from inattention to activities in progress. Both events were caused by the same operator and are not indicative of a general carelessness by licensed operators. The licensee's corrective actions in these events appears to have been adequate. Five licensee event reports involved personnel errors by licensed operators, however, the nature of the events were such that none were significant nor indicative of adverse trends in this area. In fact, improvements in operator technical knowledge and more management attention to prevention of operator error have been noted. Frequent management presence in the control room has been noted. Operations management frequently observes and participates in routine shift turnovers, providing for prompt management review of operating logs, instrument recorder traces and discussion of plant status with operators. Fewer incidents involving procedure violations have occurred as compared to the last assessment period. This is the result of enforcement of the management policy of verbatim compliance with written procedures, and a vigorous program of review and revision of procedures.

Two improper releases of radioactive liquids to the environment during this assessment period are attributable to personnel error. One involved an unplanned unmonitored release when contaminated water was drained from a service air system. The drain path was thought to go to a waste collection system when in fact it went to a storm drain system. An improperly monitored release occurred when, during a planned release of treated liquid to the environment, the record set of laboratory samples was drawn from the wrong tank.

7 AMENDED

The Plant Operations Review Committee (PORC) has been generally effective in reviewing safety issues. However, the large backlog of items needing PORC review has caused significant delays in issuance of many revised procedures. The licensee is attempting to correct this by using alternate PORC members, while maintaining proper committee quorum, to conduct daily PORC meetings. The large backlog is partially the result of the extensive program of procedure review and upgrade and the large number of modifications and design change packages requiring review prior to the scheduled refueling outage. The large number of procedure revisions has been necessitated in part by the licensee's increased emphasis on verbatim compliance and efforts to clarify the often cumbersome and difficult to follow operating procedures.

An inspection conducted early in the assessment period identified deficiencies in the area of control of design changes and modifications. Many necessary administrative procedures for control of the development of design change packages, control of documents, turnover of systems, and update of drawings and system procedures had not been issued. The licensee is undergoing major reorganization in the Maintenance and Construction and Technical Functions Divisions, and as a result, the necessary interfaces between the various corporate divisions and plant staff had not been formalized in administrative procedures. A followup inspection later in the assessment period noted significant improvement in that the Maintenance and Construction Work Management System Manual was issued to provide the necessary administrative controls in the areas of maintenance, design changes, and modifications. Senior management attention to the problem areas was evident and progress toward establishing an acceptable program by the 1983 outage appears adequate.

Early in the assessment period, some deficiencies were noted involving failure to follow equipment control procedures and inadequacies in the equipment control procedures. With assistance from a management consultant, the licensee revised the procedures to provide better control of equipment tagging, jumpering, and lifting of electrical leads. The program changes were major and required formal training of operations personnel. The new program was implemented late in the assessment period and appears to have corrected the previous deficiencies.

Responsibility for licensee's radiochemistry program was placed under the cognizance of the operations department during the assessment period. There were significant deficiencies identified that are discussed in section two, page 10. Licensee made several personnel changes within the department and improvement was noted at the end of the period.

The Plant Operations Review Committee (PORC) has been generally effective in reviewing safety issues. However, the large backlog of items needing PORC review has caused significant delays in issuance of many revised procedures. The licensee is attempting to correct this by using alternate PORC members, while maintaining proper committee quorum, to conduct daily PORC meetings. The large backlog is partially the result of the extensive program of procedure review and upgrade and the large number of modifications and design change packages requiring review prior to the scheduled refueling outage. The large number of procedure revisions has been necessitated in part by the licensee's increased emphasis on verbatim compliance and efforts to clarify the often cumbersome and difficult to follow operating procedures.

An inspection conducted early in the assessment period identified deficiencies in the area of control of design changes and modifications. Many necessary administrative procedures for control of the development of design change packages, control of documents, turnover of systems, and update of drawings and system procedures had not been issued. The licensee was undergoing major reorganization in the Maintenance and Construction and Technical Functions Divisions, and as a result, the necessary interfaces between the various corporate divisions and plant staff had not been formalized in administrative procedures. A followup inspection later in the assessment period noted significant improvement in that the Maintenance and Construction Work Management System Manual was issued to provide the necessary administrative controls in the areas of maintenance, design changes, and modifications. Senior management attention to the problem areas was evident and progress toward establishing an acceptable program by the 1983 outage appears adequate.

Early in the assessment period, some deficiencies were noted involving failure to follow equipment control procedures and inadequacies in the equipment control procedures. With assistance from a management consultant, the licensee revised the procedures to provide better control of equipment tagging, jumpering, and lifting of electrical leads. The program changes were major and required formal training of operations personnel. The new program was implemented late in the assessment period and appears to have corrected the previous deficiencies.

Significant deficiencies were found in the licensee's radiochemistry program which is under the cognizance of the operations department. They involved inadequate procedures, improper control and calibration of counting equipment, and improper review of procedures. Most of the deficiencies had been previously identified by the licensee's internal audits and were the result of inadequate management review of and involvement in the radiochemistry program. The licensee has begun a program to upgrade the training and qualification of the chemistry technicians and supervisors, to increase the size of the staff, and to

The plant engineering staff appears to be capable of providing adequate operational support to the facility. Improvement has been noted in the plant/corporate engineering interface which provides better onsite outage planning and coordination. In the past, followup analysis of plant events was frequently delayed. However, recent plant events and transients have received a prompt, coordinated effort between plant engineering, technical functions, and plant operations to perform in-depth analysis of the events and accurate, timely assessments of the consequences. Of particular note were the plant responses to a reactor feed system water hammer event, a high worth control rod withdrawal event, and the assessment of the radiological consequences of a leakage from the radwaste system waste surge tank. The technical content of Licensee Event Reports is generally excellent, although reports are not always timely. The cause of many events is frequently coded as "other," however, the narrative description of the cause is generally accurate and indicative of a thorough review. The analysis of the event and corrective actions are generally indicative of a sound, technical approach to safety issues.

During this assessment period, general improvement was noted in management control and review of most operations functions and in licensed operator performance. However, the occurrences of unmonitored releases, the significant breakdown of management controls in the radiochemistry program, the large backlog of PORC review items, and deficiencies in the design change and modification programs indicate needed management attention to effect improvements.

Conclusion - Category 2

Board Recommendations - Maintain inspection coverage consistent with program requirements for a plant in a refueling outage.

provide more in-depth management review of the daily radiochemistry activities. Improvement has been noted in this area.

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Conclusion - Category 2

Board Recommendations - Maintain inspection coverage consistent with program requirements for a plant in a refueling outage.

2. Radiological Controls (14%)

Evaluation in this area included monthly review of selected program areas by the resident inspectors and six inspections by region based inspectors of the radiation protection program, radioactive waste management, shipping, radioactive effluent monitoring, and radiochemistry program.

The licensee has developed a strong management organization in the radiological controls department with multiple levels of supervision and a viable reporting structure. The licensee's radiation protection staff is supplemented by contractor personnel with the two groups well integrated at both the technician and supervisory levels. Health Physics (HP) technicians are required to complete formal qualification programs which include both classroom and on-the-job training with written and oral board exams prior to performing responsible plant related duties. Improved General Employee Training programs have increased the plant and contractor employees' general knowledge and awareness of radiological conditions in the plant and the requirements of the radiation protection program. Procedural requirements are generally well defined and understood, and the radiological precautions written into other Plant operating, maintenance, and special installation procedures are indicative of thorough review by the radiological engineering group.

Response to noted deficiencies was generally prompt and appropriate. A violation for inadequate drywell access controls resulting in workers being locked in the drywell was corrected by issuance of a new temporary procedure shortly after identification of the violation.

Recent reorganizations in the areas of radioactive waste management and waste shipping have resulted in a strong management organization. The licensee has pursued a vigorous waste reduction program and has greatly reduced the volume of treated water released to the environment. Reviews of the waste shipping program indicate strict management control of shipping activities.

Weaknesses were noted in the areas of radiological effluent monitoring and in the radiochemistry program. Four licensee event reports were submitted on unmonitored liquid releases. Two releases were the result of equipment failure. One release was the result of contaminated water being drained into a storm sewer system by mistake and one improperly monitored release resulted when monitoring samples were taken from the wrong location. One violation was the failure to collect proper environmental air samples and one violation was the failure to perform adequate gamma spectroscopy measurements of effluent samples when the laboratory equipment was not properly

calibrated. In general, the licensee's actions after an unmonitored release were good. They included collection and analysis of appropriate environmental samples to adequately assess the environmental and safety impact. None of the releases resulted in allowable limits being exceeded.

Major programmatic weaknesses in the radiochemistry program were indicative of a general breakdown in the management controls. No central responsibility was assigned for management of the site chemistry program. As a result, procedures were poorly implemented and many were inadequate, procedures were improperly reviewed, analytical results were not reviewed and analyzed for trends, and radiochemstry laboratory equipment was poorly maintained and controlled. Most deficiencies in this area were also noted by the licensee's internal audits and a vigorous corrective action program is in progress. The deficiencies in calibration and control of radiochemistry laboratory equipment resulted in erroneous calculations in the environmental effluent monitoring program for about one year.

Licensee has begun a program to upgrade the training and qualification of the chemistry technicians and to increase the size of the staff and to provide more in-depth management revi[illegible] of the daily radiochemistry activities. Improvement has been noted in this area.

Conclusion - Category 2

Board Recommendations - Resident Inspectors should review the licensee's corrective actions in the radiochemistry program with a followup independent measurements inspection by region based inspectors prior to the end of the 1983 refueling outage.

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Conclusion - Category 2

Board Recommendations - Resident Inspectors should review the licensee's corrective actions in the radiochemistry program with a followup independent measurements inspection by region based inspectors prior to the end of the 1983 refueling outage.

3. Maintenance (9%)

This area was under review by the resident inspectors throughout the assessment period. In addition, two inspections by region-based inspectors examined the maintenance organization and staffing.

A major reorganization of the maintenance department occurred in early October, 1982. All corrective maintenance is now performed by the Maintenance and Construction (M&C) Division under the Vice President, Maintenance and Construction, and all corrective maintenance personnel including supervision report to that division. The plant maintenance manager provides plant review and approval of all work assigned to M&C. Interfaces between the plant staff and M&C are provided in the plant conduct of maintenance procedure. Additional changes to the organization will occur when an amendment is issued to formalize the reorganization in the Technical Specifications. Procedures to fully implement the new program are under development. The revised organization has provided for higher level management review of maintenance activities, with difficulties in divisional interfaces being resolved at the Vice President level, when necessary. However, review of the organization and discussions with plant personnel have indicated that there is still some confusion with respect to organizational interfaces. Early in the reorganization phase, many individuals indicated that they were unaware of what their duties and responsibilities would be in the new organization. Observation of daily maintenance planning meetings also indicate the need for further definition of responsibilities and divisional interfaces.

Consolidation of the plant maintenance and M&C supervisory staffs has provided increased manpower in the maintenance area with a current supervisor to worker ratio of about 1 to 10. The licensee intends to increase the staff further to attain an average supervisor to worker ratio of about 1 to 8. However, there are still indications of weaknesses in the first line supervision of maintenance crews. A violation occurred during this assessment period when the emergency diesel oil heaters were secured improperly during maintenance. The particular procedural violation had become routine maintenance practice approved and encouraged by the first line supervisor. In addition, there are indications of a lack of adequate direct field observation and verification of work activities by first line supervision.

Improvement has been made in this area since the last SALP assessment period. The maintenance staff includes full time schedulers who are experienced in most aspects of corrective maintenance. The schedulers review priorities, availability of material, and manpower needs, and coordinate with maintenance and plant supervision to schedule individual tasks.

Schedulers frequently review outstanding work orders in an effort to reduce the maintenance back log. Plant administrative procedures give clearly stated guidelines for assignment of work order priorities, and new work orders as well as tasks in progress are reviewed daily by senior plant management.

Revised procedures now give specific requirements for cancellation of work orders, which occurs only rarely, and only after obtaining concurrence of the initiating department supervisor. Availability of current equipment data and technical manuals has improved. Some trending of corrective maintenance is now performed and improvements have been made in machinery history records. Future reorganizations are planned to further improve maintenance history records with the formation of a plant materiel group.

Although significant improvement has been made in the general management control and review of maintenance functions, frequent rework of some jobs indicates there may be a need to improve the general quality of work and knowledge of maintenance mechanics. Near the end of the assessment period, the licensee began a program of formal classroom instructions for maintenance personnel. Improvements in this area are expected as the outage progresses.

There is evidence of management involvement and control in assuring quality in preventive maintenance. There is a full time dedicated manager with a staff to supervise and schedule. About thirty persons are assigned to perform preventive maintenance and surveillance on electrical, mechanical, instrument control and fire protection systems. Presently, all scheduling of preventive maintenance is done manually, but the licensee intends to computerize scheduling and recording in the future. A program of trend analysis of preventive maintenance and surveillance results has been started and will be expanded in the future.

<u>Conclusion</u> - Category 2

<u>Board Recommendations</u> - None.

4. Surveillance (10%)

This area was under review by the resident inspectors throughout the assessment period. One inspection of the containment leak rate test program was conducted by region-based inspectors.

Adequate management control and review of routine technical specification related surveillance programs exist. A master surveillance listing has been prepared which incorporates all surveillances required by technical specifications. An annual master schedule is prepared and is updated when technical specification amendments change surveillance requirements. Previous problems existed which involved failure to modify surveillance schedules and procedures as technical specification changes were issued. Increased management review of surveillance programs and regulatory changes have resulted in improved performance in this area. No similar problems have occurred during this assessment period.

Routine surveillance testing has generally been performed properly and on time with no violations and only two licensee event reports resulting from missed surveillances.

The review of surveillance test results has improved. First line supervisors are now responsible for the first level of review and greater management level attention is given to review and evaluation of test results. The licensee's "deviation report" system provides for prompt identification and followup evaluation of deficiencies identified during surveillance testing.

Licensee's followup review process for surveillance tests has improved in that anomalous test results have been identified and reported which were not identified in the initial review. Although some improvement in the initial review has been noted, additional effort to strengthen that process is required.

Seven of the fourteen licensee event reports relating to surveillance involved setpoint drift of safety related sensors. This has been a recurring problem and has received considerable management attention. Modifications are scheduled for the next refueling outage to correct this problem.

Although the conduct of the routine surveillance program is adequate, significant deficiencies existed in the performance of containment leak rate testing program. Violations for inadequate implementation of leak rate test procedures and observed inadequacies in the general control and coordination of the leak test program indicated a major breakdown of the management control and review of this program. There was little evidence of prior planning for the leak test program conducted in March and April of 1982. NRC review of the test program found frequently procedural violations, improper evaluation of test results, and indications that the personnel performing the tests lacked familiarity with the regulatory requirements relating to primary containment leak testing. Procedural inadequacies resulting from design and evaluation deficiencies resulted in radioactive contamination of the reactor building service air system. Also, testing found an improperly assembled valve that had remained in an inoperable condition since the 1980 refueling outage. The improper assembly had gone undetected until early 1982 because of procedural inadequacies in the leak test program. The licensee has committed to revise the affected procedures prior to using them again.

Inadequate prior planning for the leak rate test program was due, in part, to sudden unforeseen schedule changes. Operational problems forced a plant shutdown in December 1981 which lasted for three months. As a result, the licensee rescheduled the planned refueling outage for early 1983. The schedule change resulted in the required containment leak rate testing being due prior to the refueling, so the licensee elected to perform the testing prior to plant startup. This allowed very little time for procedure reviews, training of technicians and other prior planning. In addition, the testing was performed by a group of inexperienced personnel who were unfamiliar with the procedural and administrative requirements of the program. Observation of local leak rate testing performed since the end of this assessment period has noted significant improvements in this area.

In the previous assessment period, a weakness was identified in management of the controls in the IST program in that commitments made in April 1981 were not met and no followup or notification was provided to the NRC. During this assessment period, the licensee revised his commitment dates for some of the items identified in the 1981 letter. As of the end of this assessment period, the administrative procedure for control of the IST program has not been implemented, indicating that management controls require further strengthening. One possible cause for continued problems in this area is that there have been three IST coordinators in the past 3 years.

Conclusion - Category 2

Board Recommendations - Inspect the primary containment leak rate test program during leak rate testing at the end of the 1983 refueling outage.

found frequent procedural violations, improper evaluation of test results, and indications that the personnel performing the tests lacked familiarity with the regulatory requirements relating to primary containment leak testing. Procedural inadequacies during the Integrated Leak Rate Test resulted in a valving error that caused radioactive contamination of a portion of the reactor building service air system. Also, testing found an improperly assembled valve that had remained in an inoperable condition since the 1980 refueling outage. The improper assembly had gone undetected until early 1982 because of procedural inadequacies in the leak test program. The licensee has committed to revise the affected procedures prior to using them again.

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Conclusion - Category 2

Board Recommendations - Inspect the primary containment leak rate test program during leak rate testing at the end of the 1983 refueling outage.

5. Fire Protection and Housekeeping (4%)

One fire protection program inspection was conducted by a region based inspector during this assessment period. Fire protection and housekeeping were under continual review by the resident inspectors.

A full time Fire Protection Manager is assigned to the facility with sufficient staff resources to carry out all Fire Protection Program functions. Portions of the fire protection staff have been recently reassigned to the preventive maintenance department to provide for a centralized control of preventive maintenance including maintenance and inspection of fire protection equipment. This also frees the Fire Protection Manager from supervisory activities and allows more direct management level programmatic review and analysis. A coherent and effective training program has been established and assures that all operating shifts have a fully trained fire brigade.

The licensee's submittal made in accordance with 10 CFR 50 Appendix R indicated an adequate understanding of the technical and safety issues and a sound approach to resolution of the issues. The licensee has requested exemptions to some requirements of 10 CFR 50 Appendix R. These exemptions are currently under NRC review. One Licensee Event Report in the Fire Protection area involved an activation of the fire suppression system and the resulting wetdown of safety related electric equipment. Similar events had occurred during the previous assessment period which demonstrated inadequacies in the original fire protection safety evaluation. The licensee performed an extensive survey of plant systems and conducted a program of waterproofing electrical components and installation of drip shields over safety related motors and motor control centers. At the time of the event during this assessment period, the drip shield installation was complete, but the installation of terminal box gaskets and conduit sealing devices was not complete. The licensee performed a revaluation of the water tight integrity of safety related equipment and accelerated the waterproofing program in the plant.

The licensee has made significant improvements in the area of housekeeping, as a result of increased management attention which included periodic housekeeping inspections by plant management staff. General cleanliness of the plant has improved as clean up crews continually remove trash and debris before it builds up to significant levels. However, further improvements can be made by improving the attitude of general plant workers toward housekeeping. Radiological housekeeping conditions are generally acceptable. The licensee has made some reduction in the number of contaminated and high radiation areas but further reduction is still needed.

Conclusion - Category 2

Board Recommendations - None.

6. Emergency Preparedness (10%)

Analysis in this area is based on observation by an NRC Team of the annual emergency preparedness exercise which is designed to demonstrate all facets of the emergency plan, and on periodic observation by the resident inspectors of plant training exercises.

During the annual exercise on March 16, 1982, the licensee demonstrated an adequate capability to deal with a plant emergency. A number of deficiencies, most of which were also identified by the licensee, were noted in the areas of information flow, dose assessment, offsite radiological surveys, data display, personnel training, and communications. Resident inspector observations indicated that significant improvement has been made in overall site readiness prior to the exercise. Continued senior level management attention to emergency planning is evident with a full time manager assigned at the site with a significant support staff of emergency planning specialists. The licensee has also maintained a viable active duty roster of qualified emergency response personnel. The licensee has also maintained adequate shift coverage to ensure that all emergency plan requirements for non-licensed onshift personnel were met. Emergency plan training is an integral part of operator qualification and requalification training, and quarterly full scale emergency plan training drills are conducted on site.

The emergency plan and procedures continue to be adequate and shift personnel have maintained familiarity with them. The inspectors noted, however, that some procedures are cumbersome and difficult to follow. The licensee has indicated that they are planning to revise the emergency procedures to streamline them.

The licensee was issued a Notice of Violation for failure to complete the public notification system by February 1, 1982. Installation was completed on March 5, 1982. The licensee had instituted compensatory measures in the interim and 45 of 46 planned sirens were installed before March 1.

Prior to the assessment period, an Emergency Preparedness Implementation appraisal was conducted which identified a number of findings including the need for improvements in support facilities, personnel training, offsite dose assessment, procedural development, and post accident reactor coolant sampling capabilities. NRC staff has met with the licensee and is in the process of resolving the post accident sampling issue.

Conclusion - Category 2

Board Recommendations - None.

7. Security and Safeguards (8%)

During the assessment perior, there were three unannounced physical security inspections and one material control and accounting inspection conducted by region-based inspectors, and continuous inspections by the Resident Inspectors. Three minor procedural violations were identified and the licensee's corrective actions were timely and appropriate. The licensee was effective in maintaining overall security program performance and management support of site security activities was evidenced by the purchase of new explosives detectors, the assignment of professional training instructors to the security program, and the purchase of an improved computerized access control software program scheduled for installation in March 1983.

In preparation for the forthcoming refueling outage, licensee management has augmented security staff with contractor personnel. These personnel are currently undergoing training to qualify to supplement the existing guard force. The Site Security Supervisor resigned in January 1983. A qualified replacement was selected from within the company with no lapse in the supervision of the Security Department.

NRC inspection findings were corrected quickly, and actions to prevent recurrence proved adequate. There have been no repeat violations.

During this assessment period, the licensee submitted 11 Security Event Reports. The majority of these reports resulted from computerized access control system failures. The impact of these events was minimized because of timely and effective compensatory measures. The licensee intends to modify existing software to reduce or eliminate this problem, as noted above.

All security personnel appeared to be knowledgeable of their assigned duties. The Guard Training and Qualification Program is progressing on schedule, and the program is well defined and implemented by experienced personnel.

Conclusion - Category 1

Board Recommendations - Maintain normal inspection coverage.

8. Refueling and Major Outage Activities (5%)

There were no refueling outages during this assessment period, however, there were several short maintenance outages and considerable planning efforts in preparation for the 1983 refueling outage.

Considerable improvement was noted in scheduling and coordination of outage activities. The Programs and Controls department whose manager reports directly to the Vice President and Director, Oyster Creek, has been expanded and now includes a full time staff of schedulers and planners. This department oversees all outage planning at the site and coordinates site planning activities with the Technical Functions and Maintenance and Construction Divisions planning and scheduling activities. The department has effectively planned short outages with scheduling activities generally addressing key outage and outage recovery items. During forced shutdowns that occurred during the assessment period, the Programs and Controls Department was able to quickly develop schedules that not only allow prompt completion of the critical repairs but also allowed the plant to capitalize on the down time to complete other maintenance activities.

More direct management attention to review of contractor work activities has resulted in some improvement in the control of these activities. Operations supervision is now required to survey work areas accompanied by contractor supervision, prior to the start of work, to assure that contractor activities will not impair plant operation. Observation of contractor activities has indicated that contractor personnel are now more aware of radiological working conditions and requirements, as well as the general plant administrative procedures for conduct of work activities.

Significant deficiencies were noted early in the assessment period with the coordination and control of design change and modification activities. As discussed in section IV.1 of this report, the licensee has made progress toward correction of these deficiencies.

Although recent organizational changes have been made to provide an integrated and improved system of controls for work being done in the plant, the organization is still evolving with some problems with organizational interface remaining. The 1983 refueling outage schedule has been changed several times. The refueling was originally scheduled for late 1981. After several reschedulings, the outage actually began February 11, 1983. Most of the delays were the result of operational problems throughout the fuel cycle which prevented the licensee from achieving the intended fuel burnup. However, other delays were the result of the licensee's realization that the staff was not prepared to effectively manage an outage of the intended scope.

The licensee has well staffed corporate and plant engineering groups. However, the coordination between the groups with respect to outage planning is an area needing improvement. At the end of the assessment period the full scope of the 1983 outage had not been finalized, and many scheduled outage jobs had not been reviewed for availability or procurement of needed material.

Previous deficiences were noted with coordination of system turnover after modification, training of operators on modifications, and updates of system drawings and procedures. Recent changes in the organization and administrative programs should provide for more formal and effective control in this area. The effectiveness of these programs will be assessed as the outage progresses.

Conclusion - Category 2

Board Recommendations - Because of the extensive outage activities scheduled, a region based Readiness Assessment Team inspection should be performed prior to completion of pre-operational testing.

9. <u>Licensing</u>

Evaluation in this area is based on review of the licensee's activities in the Systematic Evaluation Program (SEP), Fire Protection review, Core Spray Effectiveness review, Three Mile Island Task Action Plan (NUREG 0737) responses, development of Radiological Effluent Technical Specifications (RETS), and Operator Licensing.

The licensee generally places adequate management attention and involvement in licensing activities with decision making at a level that ensure adequate management review. The licensee demonstrates a clear understanding of the issues and conservatism when safety concerns are involved but, at times, attempts to meet only the minimum requirements.

While the licensee provides generally sound and acceptable resolutions to the issues, frequent time extensions are required. Considerable NRC effort and repeated submittals are needed to adequately cover the material to be reviewed. This was particularly evident with the Fire Protection and RETS submittals. The timeliness of responses was poor in the previous assessment period and continues at about the same pace with a two to three month time delay being the norm. Marginal staffing, particularly in the light of the SEP requirements levied on the licensee, may have contributed to these delays. When the SEP is completed, adequate manpower should be available to perform in a timely manner.

Three sets of operator license examinations were conducted during the appraisal period. Overall, five out of six reactor operators and four out of eight senior reactor operators passed the examination. There has been some indication of a lack of adequate screening of applicants prior to recommending them for an examination. Four SRO candidates failed the licensing examination with low overall scores. One candidate has since passed the examination. Licensee management has taken steps to identify and correct these deficiencies, however, there has not been an adequate number of examinations to evaluate the effectiveness of this action.

<u>Conclusion</u> - Category 2

<u>Board Recommendations</u> - None.

V. SUPPORTING DATA AND SUMMARIES

1. Licensee Event Reports

Tabular Listing

Type of Events:	Unit 1
A. Personnel Error	11
B. Design/Mfg/Constr/Install.	2
C. External Cause	0
D. Defective Procedures	6
E. Component Failures	19
X. Other	25
TOTAL	63

Licensee Event Reports Reviewed

Unit 1: Reports 82-01 through 82-61, 82-63, 82-64

Causal Analysis

a. 8 LER's resulted from instrument drift causing safety system actuation sensors to have setpoints outside of the specified range. This is a recurrent problem which the licensee plans to correct during the 1983 refueling outage by modification of the affected instruments. The LER's in this group are: 82-01, 82-03, 82-07, 82-15, 82-17, 82-24, 82-29, and 82-56.

b. 4 LER's reported loss of stack gas monitoring resulting from electrical trips of the sample pumps. The licensee plans to upgrade the stack gas monitoring system during the 1983 refueling outage. LER's in this group are: 82-30, 82-41, 82-44, and 82-55.

c. 3 LER's involved missed surveillances. They were: 82-08, 82-38, and 82-63.

d. 3 LER's involved degraded offgas isolation capability due to control problems with valve V-7-31. LER's in this group are: 82-15, 82-35, and 82-61.

e. 3 LER's reported failure of valves to pass the containment local leak rate test. They were: 82-14, 82-19, and 82-20.

2. Investigation Activities: None

3. Escalated Enforcement Actions

   a. Civil Penalties

      $40,000 proposed December 1982 for violations involving failure to declare one Isolation Condenser inoperable and improper maintenance and testing on a Torus Vacuum Breaker.

   b. Orders

      April 30, 1982, order to all Licensees modifying 10 CFR 50.48 rule effective date.

   c. Confirmatory Action Letters

      Confirmatory action letter dated February 18, 1982 regarding deficiencies in emergency preparedness identified in the January 1982 appraisal.

4. Management Conferences

April 16, 1982	Onsite to discuss Cycle II SALP
May 4, 1982	Region I to discuss violations involving failure to declare Isolation Condenser inoperable and improper maintenance and testing on torus vacuum breaker.

TABLE 1

TABULAR LISTING OF LERs BY FUNCTIONAL AREA

OYSTER CREEK NUCLEAR GENERATING STATION

Area	Number/Cause Code					Total
1. Plant Operations	6/A		1/D	1/E	2/X	10
2. Radiological Controls				1/E		1
3. Maintenance	4/A	2/B	1/D	15/E	15/X	37
4. Surveillance	1/A		4/D	2/E	7/X	14
5. Fire Protection					1/X	1
6. Emergency Preparedness						
7. Security and Safeguards						
8. Refueling						
9. Licensing Activities						
10. Other						
					TOTAL	63

Cause Codes:

A - Personnel Error
B - Design, Manufacturing, Construction, or Installation Error
C - External Cause
D - Defective Procedures
E - Component Failure
X - Other

TABLE 2

VIOLATIONS (2/1/82 - 1/31/83)

OYSTER CREEK NUCLEAR GENERATING STATION

A. Number and Severity Level of Violations

Severity Level I	0
Severity Level II	0
Severity Level III	2
Severity Level IV	13
Severity Level V	7
Severity Level VI	3
Total	25

B. Violations Vs. Functional Area

FUNCTIONAL AREAS	Severity Levels I	II	III	IV	V	VI
1. Plant Operations				7	2	2
2. Radiological Controls				1	1	
3. Maintenance			1		1	
4. Surveillance				4	1	
5. Fire Protection						
6. Emergency Preparedness			1			
7. Security & Safeguards				1	2	
8. Refueling						
9. Licensing Activities						1
Totals	0	0	2	13	7	3

Total Violations = 25

TABLE 3

INSPECTION HOURS SUMMARY (2/1/82 - 1/31/83)

OYSTER CREEK NUCLEAR GENERATING STATION

	Hours	% OF TIME
1. Plant Operations	971	40
2. Radiological Controls	331	14
3. Maintenance	213	9
4. Surveillance	259	10
5. Fire Protection/Housekeeping	97	4
6. Emergency Preparedness	247	10
7. Security and Safeguards	197	8
8. Refueling	120	5
9. Licensing	No Data Available	
Total	2435	

TABLE 4

INSPECTION REPORT ACTIVITIES

OYSTER CREEK NUCLEAR GENERATING STATION

February 1, 1982 - January 31, 1983

Report No. and Inspection Dates	Inspection Hours	Inspector	Areas Inspected
82-02 1/4/82-3/1/82	36*	Resident	Routine Resident Safety Inspection
82-03 3/2/82-4/5/82	32	Resident	Routine Resident Safety Inspection
82-04 3/15/82-3/17/82	246	NRC Team and Resident	Emergency Preparedness and Observation of Annual Emergency Exercise
82-05 2/8/82-2/19/82	50	Specialist	Design Changes and Modifications
82-06 /17/82-4/6/82	118	Specialist	Containment Penetration Leakage Test Program and Observation of Primary Containment Integrated Leak Test
82-07 /23/82-4/2/82	38	Specialist	Fire Protection/Prevention Program
82-08 /2/82-3/17/82	22	Resident	Review of Improper Assembly of a Reactor Building To Suppression Chamber Vacuum Breaker
82-09 /6/82-5/3/82	80	Resident	Routine Resident Safety Inspection
82-10 /12/82-4/15/82	27	Specialist	Physical Security
82-11 4/8/82	9	Specialist	Review of Radioactive Contamination of Service Air Piping
82-12 4/16/32	10	- - -	Management Meeting to Discuss SALP Conclusions
82-13 5/4/82	30	- - -	Enforcement Conference to Discuss Findings of Inspections 81-21 and 82-08

* Includes only those inspection hours after February 1, 1982

TABLE 4 (Continued)

R t No. and Inspection Dates	Hours	Inspection Inspector	Areas Inspected
82-14 5/17/82-5/21/82	63	Specialist	Physical Security
82-15 5/24/82-5/28/82	36	Specialist	Training
82-16 5/4/82-6/1/82	66	Resident	Routine Resident Safety Inspection
82-17 /2/82-7/5/82	115	Resident	Routine Resident Safety Inspection
82-18 /6/82-8/2/82	83	Resident	Routine Resident Safety Inspection
82-19 /2/82-8/6/82	60	Specialist	Radiation Protection
82-20 /3/82-9/7/82	131	Resident	Routine Resident Safety Inspection
82-21 82-9/3/82	158	Specialist	Quality Assurance Program, Design Change and Modification Program, Offsite Support Staff
82-22 /8/82-10/6/82	212	Resident	Routine Resident Safety Inspection
82-23 /14/82-9/17/82	56	Specialist	Environmental Monitoring Program
82-24 /27/82-10/8/82	80	Specialist	Independent Measurements and Radio Chemistry Program
82-25 0/7/82-11/11/82	169	Resident	Routine Resident Safety Inspection
82-26 0/12/82-10/15/82	52	Specialist	Physical Security
82-27 0/20/82-10/22/82	22	Specialist	Special Nuclear Material Control and Accounting
82-28 1/9/82-11/16/82	37	Specialist	Radiation Protection
82-29 1/12/82-12/31/82	234	Resident	Routine Resident Safety Inspection

TABLE 4 (Continued)

R... t No. and ...tion Dates	Hours	Inspection Inspector	Areas Inspected
83-01 ./1/83-1/31/83	128	Resident	Routine Resident Safety Inspection
83-02 ./16/83-1/20/83	35	Specialist	Radiation Protection, Followup of Allegation of Lost Neutron Source

ATTACHMENT 1

ENFORCEMENT DATA

OYSTER CREEK NUCLEAR GENERATING STATION

February 1, 1982 - January 31, 1983

INSPECTION NUMBER	SUBJECT	REQ.	SEV.	AREA
82-02	Surveillance controls did not appropriately protect safety features from adverse environmental conditions	10 CFR 50 Appendix B	IV	4
82-02	Failure to follow procedures for vital area access control	T.S.	V	7
82-02	Failure to control vital area keys in accordance with procedures	T.S.	IV	7
82-05	Administrative procedures were not implemented for performance of design changes and modifications	10 CFR 50 Appendix B	VI	1
82-05	Report of facility changes was not submitted for calendar year 1980	10 CFR 50.59	VI	9
82-05	Followup action to audits was not taken	10 CFR 50	VI	1
82-06	No LER was submitted to report identified primary containment degradation	T.S.	IV	4
82-06	Procedures were not properly implemented during performance of containment leak rate testing	T.S.	IV	4
82-08	Failure to maintain containment integrity and vacuum breaker operability when valve misassembly went undetected	T.S.	III	3
82-17	Radioactive liquid was released and was not continuously monitored	T.S.	IV	1
82-18	Failure to follow procedures to protect safety features from adverse environment	T.S.	IV	4
82-18	Procedures as implemented did not adequately confirm system realignment	T.S.	IV	1

ATTACHMENT 1 (Continued)

INSPECTION #	SUBJECT	REQ.	SEV.	AREA
82-20	Failure to follow equipment control procedures when diesel oil heaters were secured	T.S.	V	3
82-20	Procedures were inadequate to assure proper control of a locked high radiation area	T.S.	IV	2
82-22	Isolation Condenser isolation systems were not fully operable when open isolation valves were electrically defeated	T.S.	IV	1
82-23	Environmental air particulate samples were not collected at the proper frequency	T.S.	V	2
82-23	Environmental thermal monitoring system calibrations did not include sensor calibration	T.S.	V	4
82-24	Failure to make adequate gamma spectroscopy measurements of effluent samples	10 CFR 20	IV	1
82-24	Failure to implement chemical and radio-chemical control procedures	T.S.	IV	1
4	Radiochemistry procedures used by contractor and vendor laboratories were not reviewed and approved as required.	T.S.	V	1
82-24	Procedures for calibration and operation of a gamma spectrometer were not reviewed and approved	T.S.	V	1
82-25	Failure to follow visitor escort procedures	T.S.	V	7
82-29	Failure to conduct a proper shift turnover	T.S.	IV	1
82-29	Rod Worth Minimizer procedures were inadequate to insure verification of rod withdrawal sequences	T.S.	IV	1
82-36 *	Failure to demonstrate that administrative and physical means were established to alert the public within the plume exposure pathway	10 CFR 50 Appendix E	III	6

* This enforcement action issued by letter dated February 12, 1982 from Director, Office of Inspection and Enforcement to GPU Nuclear Corporation

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

Enclosure 3

APR 2 9 1983

Docket No. 50-219

GPU Nuclear Corporation
ATTN: Mr. P. B. Fiedler
Vice President and Director
Oyster Creek Nuclear Generating Station
P.O. Box 388
Forked River, New Jersey 08731

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP)

The NRC Region I SALP Board conducted a review on April 19, 1983 to assess the performance of activities associated with the Oyster Creek Nuclear Generating Station. The results of this assessment are documented in the enclosed SALP Board Report. A meeting has been scheduled for 1:00 p.m., May 12, 1983, at the station to provide a forum for candid discussions relating to the performance assessment.

You also should be prepared to discuss any plans to improve performance. Any comments you have regarding the board report may be discussed at this meeting. Additionally, you are requested to provide written comments within 20 days of the meeting.

Following the meeting and receipt of your written comments, the enclosed report, your response, and a summary of our findings and planned actions will be placed in the NRC Public Document Room.

Your cooperation is appreciated.

Sincerely,

Richard W. Starostecki, SALP
Board Chairman
Director, Division of Project and
Resident Programs

Enclosure: As Stated

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 Enclosure 3

cc w/enclosure:
P. Clark, Executive Vice President, GPU Nuclear Corporation
NRC Resident Inspector

Enclosure 4

GPU Nuclear

GPU Nuclear
P.O. Box 388
Forked River, New Jersey 08731
609-693-6000
Writer's Direct Dial Number:

June 17, 1983

Mr. Richard W. Starostecki,
SALP Board Chairman
Directo , Division of Project and
Resident Programs
U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Starostecki:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Systematic Assessment of Licensee
Performance (SALP)

Your letter of April 29, 1983, provided the results of the SALP Board's assessment. In response to your letter and the follow-up meeting of May 12, 1983, where discussions took place regarding the assessment, we submit the following comments in the areas of Plant Operations, Maintenance, and Surveillances.

PLANT OPERATIONS

Three areas identified in the assessment of Plant Operations warrant comments in order to provide additional information regarding our progress to date.

As identified in the assessment, there did exist a backlog of items needing Plant Operations Review Committee (PORC) attention. The backlog was in fact due to the large number of modifications scheduled for the refueling outage and our procedure upgrade program. That backlog has now been eliminated.

With regard to control of design changes and modifications, the assessment pointed out that we were undergoing a major reorganization in the Maintenance and Construction and Technical Functions Divisions; and as a result, the necessary interfaces between various corporate divisions and the plant staff had not been formalized in administrative procedures. Management attention in this area enabled us to formalize the controls necessary prior to the start of our refueling outage. The procedural systems are now in place and functioning. .

We recognized in early 1982 that our radiochemistry program needed upgrading. At that time we established both short and long term goals to upgrade our program and the goals we established for 1982, were realized. Significant technical expertise has been added to our staff and operational chemistry functions have been transferred to our Plant Operations Department. In addition, technical expertise

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and assistance from corporate headquarters is now being integrated into our program. A Chemistry technici[illegible] training program is now in effect which includes a minimum of 240 hours/year of formal training. New laboratory equipment has been purchased and a new laboratory will be constructed during this current outage. Negotiations are currently underway with the Union (IBEW) to upgrade entry level requirements for Chemistry Technicians as well as annual requalification for Chemistry Technicians. Continued improvements during 1983 will be realized.

MAINTENANCE

We believe we have obtained our maintenance goals and objectives set forth in our SALP response of last year. The major reorganization of our Maintenance and Construction Division has been effected which resulted in firmly establishing our Work Management System for corrective maintenace and all modification work.

There is a need to improve the quality of work and knowledge of our maintenance personnel, and our efforts will be directed in this area. We intend to upgrade our training programs with more emphasis on work related activities. A training center for maintenance personnel is nearing completion which will allow a greater portion of time to [illegible] devoted to hands on training rather than just lectures. In addition, our second [illegible]e supervisors will take an active part in the training process. Training conducted by our most experienced personnel on plant specific equipment will lessen the amount of rework now required.

SURVEILLANCES

The assessment states, "Procedural inadequacies during the Integrated Leak Rate Test resulted in a valving error that caused radioactive contamination of a portion of the reactor building service air system." The statement is incorrect in that it was not a valving error, but a design error which caused contamination of the service air system.

With regard to the intergrated leak rate test, the procedural deficiencies noted in the assessment have been corrected by thorough procedure review and revisions. In addition, our Startup and Test Department will assist in the next integrated leak rate test which is scheduled prior to startup from our current outage.

The administrative control procedure for the IST program was approved in January of 1983 and became effective in February.

Dialogue provided by the SALP process enables both the NRC and the Licensee to better focus on those areas in need of management attention. If there are any questions regarding our comments please contact me or Mr. Michael Laggart of my staff at (609) 971-4643.

Very truly yours,

Peter B. Fiedler
Vice President and Director
Oyster Creek

PBF:jal

cc: NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

JUN 1 6 1982

Docket No. 50-219

GPU Nuclear Corporation
ATTN: Mr. P. R. Clark
Vice President - Nuclear
100 Interpace Parkway
Parsippany, New Jersey 07054

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP) and Management Meeting 50-219/82-12

This refers to the SALP for the Oyster Creek Nuclear Generating Station, conducted by this office on March 29, 1982 and discussed with you and your staff at the subject meeting on April 16, 1982. The report of our meeting is attached as Enclosure 1. The NRC Region I SALP Report is attached as Enclosure 2 and covers the period November 1, 1980 - October 31, 1981. Your letter dated May 6, 1982, which we requested provided comments and commitments for performance improvements and is attached as Enclosure 3.

Overall, we find that your performance of licensed activities generally is acceptable and directed toward safe facility operation. Your performance in the areas of maintenance and surveillance was found to be in need of increased NRC and GPU Nuclear Corporation management attention.

In our meeting of April 16, we discussed our assessment of your regulatory performance in these areas, your comments on the SALP Program and assessment, and the actions that you are taking to improve your performance. We have also reviewed your letter of May 6, and determined that your actions to improve performance in these areas needing attention are responsive. We consider that our meeting was beneficial and improved mutual understanding of your activities and our regulatory program. Based on your comments during our meeting and your May 6 letter, we have found that no changes to our assessment are necessary and therefore we have not supplemented our report. We have, however, made minor editorial and typographical corrections that did not affect our assessment or conclusions. In addition, we made the corrections in evaluation sections 1 (Plant Operations) and 6 (Emergency Preparedness) concerning the title of the Nuclear Assurance Department Operations Support Program and the installation dates for the Public Notification System sirens, which you brought to our attention in your May 6, 1982 letter.

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As Region I does not presently control the issuance of Technical Specification changes, your request that these changes become effective 30 days after receipt by the licensee, rather than upon date of issuance, has been brought to the attention of Oyster Creek Licensing Project Manager in the Office of Nuclear Reactor Regulation, Division of Licensing.

In accordance with 10 CFR 2.790(a), a copy of this letter and its enclosures will be placed in the NRC Public Document Room. No reply to this letter is required. Your actions in response to the NRC Systematic Assessment of Licensee Performance will be reviewed during future inspections of your licensed activities.

Your cooperation is appreciated.

Sincerely,

Ronald C. Haynes

Ronald C. Haynes
Regional Administrator

Enclosures:
1. NRC Region I Meeting Report 50-219/82-12
2. NRC Region I Systematic Assessment of Licensee Performance, Oyster Creek Nuclear Generating Station, March 29, 1982
3. GPU Nuclear Corporation Letter, R. Clark (GPU) to R. C. Haynes (NRC Region I), Response to Systematic Assessment of Licensee Performance, May 6, 1982

cc w/encl:
M. Laggart, Licensing Supervisor
J. Knubel, BWR Licensing Manager
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of New Jersey

bcc w/encl:
Region I Docket Room (with concurrences)
Chief, Operational Support Section (w/o encls)
L. Tripp
R. Keimig
R. C. Lewis, Director, DPRP, Region II
R. L. Spessard, Director, DPRP, Region III
J. E. Gagliardo, Acting Director, DVTP, Region IV
J. L. Crews, Director, DRRRP&EP, Region V
J. J. Lombardo, Oyster Creek LPM, NRR
Resident Sites

IE01

ENCLOSURE 1

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-219/82-12

Docket No. 50-219

License No. DPR-16 Priority -- Category --

Licensee: GPU Nuclear Corporation
P.O. Box 388
Forked River, New Jersey

Facility Name: Oyster Creek Nuclear Generating Station

Meeting at: Forked River, New Jersey

Meeting conducted: April 16, 1982

NRC Personnel: [signature] for 5/25/82
J. A. Thomas, Resident Inspector — date signed

Approved by: [signature] for 5/25/82
L. E. Tripp, Chief, Reactor Projects Section 2A — date signed

Meeting Summary:
Meeting on April 16, 1982 (Meeting Report No. 50-219/82-12)
Scope: Special management meeting to discuss the results of the NRC Region I assessment of the licensee's performance from November 1, 1980 to October 31, 1981, as part of the NRC's Systematic Assessment of Licensee Performance (SALP) program. Areas addressed included: Plant Operations, Radiological Controls, Maintenance, Surveillance, Fire Protection, Emergency Preparedness, Security and Safeguards, Refueling, and Licensing activities.
Results: A summary of the NRC licensee performance assessment was presented. No new enforcement actions were identified.

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DETAILS

1. Licensee Attendees

   M. Budaj, Manager, Special Projects
   J. Carroll, Jr., Director, Station Operations
   P. Clark, Executive Vice President
   R. Fenton, Supervisor, Emergency Preparedness
   K. Fickeissen, Plant Engineering Director
   P. Fiedler, Vice President and Director, Oyster Creek
   J. Frew, Plant Maintenance
   D. Gaines, Manager, Plant Administration
   W. Garvey, Manager, Plant Administration
   D. Grace, Manager, Oyster Creek Engineering Projects
   D. Klucsik, Communications
   J. Knubel, BWR Licensing Manager
   M. Laggart, Licensing Supervisor
   J. Maloney, Manager, Plant Maintenance
   R. Markowski, Site Audit Manager
   J. Riggar, Security Supervisor
   J. Sullivan, Jr., Plant Operations Director
   C. Tracy, Manager, Quality Assurance, Mod/Ops
   D. Turner, Manager, Radiological Controls

2. NRC Attendees

   J. Allan, Deputy Regional Administrator, Region I
   C. Cowgill, Senior Resident Inspector, Peach Bottom
   R. Keimig, Chief, Reactor Projects Branch 2, Division of Project and Resident Programs, Region I
   J. Lombardo, Licensing Project Manager, NRR
   R. Starostecki, Director, Division of Project and Resident Programs, (DPRP), Region I
   J. Thomas, Resident Inspector, Oyster Creek
   L. Tripp, Chief, Reactor Projects Section 2A, DPRP

3. Discussion

   A brief summary of the Systematic Assessment of Licensee Performance (SALP) program was presented to explain the basis and purpose of the program.

   The NRC Region I assessment was discussed, including the assessment period, evaluation topics and methods, and assessment results. The licensee discussed actions taken and planned to continue performance improvements and address weaknesses.

   The SALP assessment report and your May 6, 1982 letter which we requested in our April 7, 1982 letter in response to that report is also enclosed with this transmittal.

ENCLOSURE 2

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

GPU NUCLEAR CORPORATION

OYSTER CREEK NUCLEAR GENERATING STATION

March 29, 1982

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TABLES

I. INTRODUCTION

a. Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect the available observations on an annual basis and evaluate licensee performance based on those observations with the objectives of improving the NRC Regulatory Program and Licensee performance.

The assessment period is November 1, 1980 through October 31, 1981. This assessment, however, contains pertinent observations and NRC and licensee activities through March, 1982. Future assessment periods will be adjusted to provide more timely NRC assessment and reporting.

The prior SALP assessment period was August 1, 1979 - July 31, 1980. Significant findings of that assessment and the period between that assessment and this assessment, are provided in the applicable Performance Analysis Functional Areas (Section IV).

Evaluation criteria used during this assessment are discussed in Section III below. Each criterion was applied using the "Attributes for Assessment of Licensee Performance" contained in NRC Manual Chapter 0516.

b. SALP Attendees:

- R. W. Starostecki, Director, Division of Project and Resident Programs
- J. H. Joyner, Chief, Technical Programs Branch, Division of Engineering and Technical Programs
- W. G. Martin, Chief, Operations Support Section, Division of Emergency Preparedness and Operational Support
- R. R. Keimig, Chief, Reactor Projects Branch No.2, Division of Project and Resident Programs
- L. E. Tripp, Chief, Reactor Projects Section No. 2A, Division of Project and Resident Programs
- J. J. Lombardo, Licensing Project Manager, Operating Reactors Branch No. 5, NRR
- J. A. Thomas, Resident Inspector, Oyster Creek Nuclear Generating Station

Other NRC Attendees:

- E. J. Brunner, Chief, Reactor Projects Branch No. 1, Division of Project and Resident Programs
- C. J. Cowgill, Senior Resident Inspector, Peach Bottom Atomic Power Station

c. Background

(1) Licensee Activities

At the beginning of the assessment period, the facility was operating at about 95 percent power having started up from a seven-month-long major refueling outage on July 19, 1980. Plant output was limited by maximum differential pressure across the condensate demineralizers. The licensee was unable to perform the needed demineralizer regenerations because of the inability to process the resulting radioactive liquid waste.

The plant was shut down on November 21, 1980 to repair a leaking feedwater heater and a feedwater system check valve. Power operation was resumed on December 12, 1980, but at a reduced capacity due to condensate demineralizer differential pressure considerations. Power was further reduced later in the month to remove some demineralizers from service to perform regenerations. Full power was achieved on January 26, 1981.

Power was reduced periodically during February, 1981 to repair circulating water intake screens and salt water leaks in the main condensers. Power was limited to about 90 percent in March due to demineralizer capacity. A five day shutdown began on March 12, 1981 to repair steam leaks in the condenser bay and condenser salt water leaks. A seven day shutdown began on March 28, 1981 when primary system leak rate increased due to a leaking recirculation pump seal and a leaking drywell air cooler.

Power operation resumed on April 2, 1981, but power was reduced to about 70 percent when a feedwater heater string was removed from service due to heater leaks.

A scheduled maintenance shutdown began on April 17, 1981 and lasted until May 28, 1981. The maintenance included general plant maintenance, feedwater heater repairs, installation of environmentally qualified limitorque valve operators in the drywell, and modifications to containment isolation valve control circuits.

During restart on May 29, the reactor tripped on low water level caused by a bypass valve transient. Restart was accomplished the following day but full power was not achieved until June 11, 1981 because of condenser salt water leaks.

Power was reduced on June 18 due to inability to maintain condenser vacuum. It was further reduced on June 23 when a feedwater heater string was removed from service for leak repairs. The plant tripped on June 26, 1981 due to low condenser vacuum and was restarted on June 30 after repairs to the steam jet air ejector system.

Throughout the month of July the plant operated at reduced power due to degraded condenser vacuum. A shutdown began on August 11, 1981 to correct an increasing primary leak rate and to investigate the degraded vacuum condition. Startup was delayed by sudden tube failures in two of three shutdown cooling heat exchangers on August 26 and 27, 1981. The plant remained in cold shutdown using alternate means of decay heat removal until restart on October 15, 1981.

The plant tripped on October 19, 1981 when a main steam isolation valve was inadvertently closed during surveillance testing. Restart was accomplished on October 19, but a shutdown was initiated on October 21, 1981 when a conduit, attached to the outside wall of the reactor building, collapsed breaking several instrument control cables and causing closure of the off-gas isolation valve. Restart was conducted on October 22 but another shutdown began on October 30 to repair a leaking manway cover on a main steam system reheater.

Restart was commenced on November 2, but full power was not achieved until November 11, 1981 due to malfunctions of the Traversing Incore Probe system.

On December 9, 1981, the facility was shut down to repair limitorque valve operators damaged by a practice of "backseating" the valves to stop packing leaks. Startup has been delayed by bearing failures in the reactor water cleanup system auxiliary pump, control rod drive hydraulic pump failures, diesel generator air cooler tube leaks, and main steam isolation valve leaks. The plant remains in cold shutdown pending satisfactory completion of primary containment integrated leak tests.

(2) Inspection Activities

One NRC resident inspector was onsite for the entire appraisal period.

Total NRC Inspection Hours: 2062 (Resident and region based). Distribution of inspection hours is shown on Table 3.

A tabulation of inspection activities is shown in Table 4, and a tabulation of violations is shown in Table 5.

One inspection was conducted by the State of Nevada resident inspector at the Beatty waste burial site.

II. SUMMARY OF RESULTS

OYSTER CREEK NUCLEAR GENERATING STATION

FUNCTIONAL AREAS	CATEGORY 1	CATEGORY 2	CATEGORY 3
1. Plant Operations		X	
2. Radiological Controls o Radiation Protection o Radioactive Waste Management o Transportation o Effluent Control and Monitoring		X	
3. Maintenance			X
4. Surveillance (Including Inservice and Preoperational Testing)			X
5. Fire Protection and Housekeeping		X	
6. Emergency Preparedness		X	
7. Security & Safeguards		X	
8. Refueling		X	
9. Licensing Activities		X	

III. CRITERIA

The following evaluation criteria were applied to each functional area:

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.

To provide consistent evaluation of licensee performance, attributes associated with each criterion and describing the characteristics applicable to Category 1, 2, and 3 performance were applied as discussed in NRC Manual Chapter 0516, Part II and Table 1.

The SALP Board conclusions were categorized as follows:

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.

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.

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 appeared strained or not effectively used such that minimally satisfactory performance with respect to operational safety and construction is being achieved.

IV. PERFORMANCE ANALYSIS

1. Plant Operations

During the previous assessment period, (August 1, 1979 - July 31, 1980), several violations were identified involving procedural inadequacies, inadequate mechanisms for issuance of management instructions, and failure to follow procedures. Of particular importance was an incident involving failure to remove control rod interlock bypass jumpers prior to completion of control cell fuel reload. Programmatic weaknesses were identified in the area of adherence to management controls procedures at the lower management and supervisory levels, and in the area of meeting commitments to the NRC. An improving trend was noted as licensee management responded in a positive manner to address the identified weaknesses.

This area was under continuing review by the resident inspector for the current (November 1, 1980 - October 31, 1981) assessment period. Twelve operations related violations were identified. Failure to follow procedures resulted in four Severity Level V violations. Inadequacies in the area of administrative controls resulted in one Severity Level V violation when PORC meeting reports were not properly distributed, and two Severity Level VI violations involving failure to properly review or revise operating and surveillance procedures. Two Severity Level IV violations were identified involving failure to recognize a containment integrity violation when an isolation valve failed during testing, and recurrent violations of technical specifications when containment spray compartment water tight doors were left open. Failure to report an unplanned radioactive release and inadequate corrective action on recurrent spills of radioactive liquid resulted in two Severity Level IV violations. One Severity Level II violation involving vacuum breaker blockage was indicative of inadequate controls over activities affecting plant operations, and sometimes inadequate tours of the plant by operations personnel. Thirty-two licensee event reports were related to the operations area. Reports were generally timely and accurately identified the causes and corrective actions needed.

Improvements have been noted in management involvement in this area. The licensee has implemented an Operations Support Program. The program involves the assignment of an Assistant to the Plant Operations Director, Shift Assistants, and members of the Nuclear Assurance Division who are tasked with reviewing plant operations and making recommendations for improvement in the areas of procedural adequacy, procedural adherence, and control of activities that have an impact on operations. Also, corporate management has issued policy statements stressing verbatim compliance with operating procedures and has begun vigorously enforcing the policy.

This program has resulted in many improved procedures, improved procedural adherence, improved operator awareness and understanding of plant activities, improved followup of operations identified maintenance concerns, and improved operator morale. The program has relieved some management and supervisory personnel of administrative burdens, allowing more timely and thorough reviews of activities.

The development of a "programs and controls" group has improved the scheduling and prioritization of work activities and the coordination between maintenance and operations.

Some problems still exist with operator knowledge of regulatory requirements. These problems are evidenced by the following:

(1) Failure to recognize malfunction of a TIP in-shield limit switch as a degradation of containment integrity.

(2) Failure to recognize failure of a reactor building ventilation isolation valve as a degradation of containment integrity.

(3) Interpretation of exceeding a peaking factor limit during a power transient as a "Safety Limit Violation."

Licensee corrective and preventive actions have been generally acceptable and indicative of a responsiveness to NRC concerns.

Conclusion - Category 2

Board Recommendations - None

2. Radiological Controls

The previous assessment period identified several areas of major concern. Programmatic problems included inadequate staffing, use of personnel not meeting ANSI N18.1-1971 standards, procedures inconsistent with Technical Specifications, and poor control in the area of transportation of radioactive waste. Nineteen violations were identified and one civil penalty was assessed for inadequate radiation work permit procedures. An improving trend was noted in the latter part of the assessment period when action was taken to upgrade the radiation protection training program, increase the size and quality of the radiation protection staff, and implement organizational changes to put direct management attention in the areas of radwaste operations and shipping.

During the current assessment period, four inspections were performed by region based inspectors in the area of radiological controls. One included a review of the radwaste management program and two included review of effluent monitoring and control. In addition, one regional office evaluation of a State of Nevada burial site inspection, and one investigation of NAC-1E shipping cask event were conducted. Selected activities in this area were under continuous review by the resident inspector. Six violations, two Severity Level III's associated with radioactive waste transportation, two Severity Level IV's associated with control of high radiation area access, and two Severity Level V's associated with dosimetry issue procedures and control of procedure changes were identified. These items were not repetitive or indicative of programmatic breakdowns. Corrective actions were timely.

Two licensee event reports identified unmonitored uncontrolled liquid releases. Four operations related event reports identified failures to monitor gaseous effluents due to sample system breakdowns. The events were properly classified and reported.

Management involvement in this area is evidenced by the major reorganization of the radwaste management program and generally well defined procedures. However, lack of formal approval of Radiation Control Technician training program remains a long-standing issue. The General Employee Training Program contributes to fair adherence to procedures and minor numbers of personnel errors. The plant staffing appears to be adequate and the radiological engineering reviews show evidence of adequate planning and technically sound approaches to problems.

Conclusion - Category 2

Board Recommendations - None

3. Maintenance

Three inspections during the previous assessment period identified no violations. Three of four maintenance related event reports involved personnel error. The assessment concluded that the licensee had a viable maintenance program with no major programmatic weaknesses.

During the current assessment period, one region based inspection and routine inspection by the resident inspector identified no violations. In an effort to improve the maintenance program, the licensee has assigned a full time preventive maintenance manager and a full time corrective maintenance manager reporting to the plant maintenance manager. This has placed increased management attention on the control of maintenance activities; however, there is a lack of corporate and plant management involvement in the review and prioritization of outstanding maintenance items and an apparent understaffing in maintenance departments. There is a large backlog of outstanding work orders and frequent instances where job orders are closed out when only temporary repairs are completed, or where job orders considered to be of minor importance are cancelled.

In addition to a backlog of maintenance orders, there is a large number of long-standing lifted leads and jumpers. These have not been closed because of incomplete maintenance modifications which did not include permanent removal of abandoned components, or the need for further engineering review.

The preventive maintenance program is being expanded and crews dedicated specifically to preventive maintenance are being formed. This program presently involves primarily instrumentation and lubrication. Maintenance records are reviewed by a preventive maintenance engineer who is developing machinery history records, but this program has not yet been developed to the point that maintenance trend analysis can be performed.

In addition to marginal maintenance history records, the availability of current equipment data is a weakness. Controlled files of equipment data with component model and serial numbers, parts lists, and engineering drawings are not always up to date. For example, the controlled valve list does not reflect the fact that the reactor building to suppression chamber air operated vacuum breakers were replaced with valves made by a different manufacturer in 1979.

The licensee's response to NRC initiatives is sometimes delayed. For example, corrective actions on a 1977 IE Circular relating to fuse coordination in Standby Liquid Control system Squib firing circuits, a 1979 IE Circular relating to defective diesel fire pump starting contactors, and a 1979 IE Circular on Limitorque valve operator locking devices were not completed until the NRC expressed concern for lack of responsiveness.

An event during the assessment period involving blockage of torus vacuum breaker valves by contractor erected scaffolding resulted in a Severity Level II violation and assessment of a civil penalty. Another event involved an unmonitored airborne release of radioactive material from the radwaste building ventilation system. These events are indicative of inadequate control of contractor work. After the assessment period, an event involving improper assembly and testing of a torus vacuum breaker valve was discovered. The action resulted in one torus vacuum breaker being inoperable for about 18 months during reactor operation. This event, which is still under review by the NRC, indicates that a strengthening of management control and procedural control over maintenance activities is necessary.

The licensee has implemented a program of increased management involvement in maintenance activities. In addition, recent staffing changes which have placed individuals with extensive maintenance background in upper-level management positions have resulted in an improving trend in this area.

Conclusion - Category 3

Board Recommendations - Increased inspection effort by the resident inspector

4. Surveillance

During the previous assessment period, six routine unannounced inspections by region based inspectors, one Performance Appraisal Branch Inspection and routine inspection by the resident inspector identified three violations. The licensee had failed to perform surveillances on three occasions.

During the current assessment period, two region based inspections, one regional based team inspection, and routine resident reviews identified eight violations. The violations involved failure to conduct Technical Specification and ASME Section XI testing, inaccurate calibration, calibration and testing without procedure, and inadequate calibration data and procedural changes.

Corrective action was agreed to in an Immediate Action Letter dated April 8, 1981. The licensee agreed to upgrade his inservice test program to meet the requirements of ASME code Section XI by January 1, 1982. After the assessment period, region based inspectors found that the licensee had not completed all corrective action, in that a program for valve testing was not fully implemented. The licensee has since submitted a revised completion schedule to NRC:RI. The licensee stated that operational commitments and manpower shortages were the reasons for not meeting the commitments. The high number of violations and the failure to meet commitment dates without notification, indicate weakness in licensee management control in this area.

The large number of event reports resulting from instrument drift and the long standing nature of this issue indicates a need for high level management involvement in this area to achieve technically acceptable resolution. Violations resulting from missed surveillances, in particular a Severity Level IV violation involving failure to survey Emergency Service Water pumps following unacceptable surveillance on redundant pumps, indicate a need for more management attention in review of surveillance programs and assuring unambiguous acceptance criteria.

This need is further amplified by a violation that occurred after the assessment period. Three successive failures of an isolation condenser valve during operability testing followed by two successful operations of the valve, with no followup investigation to determine the cause of the failures, was interpreted by a member of the management staff as acceptable component performance.

Conclusion - Category 3

Board Recommendations - None

5. Fire Protection and Housekeeping

Three inspections by region based inspectors and one Performance Appraisal Branch inspection during the previous assessment period identified no major programmatic weaknesses. Two violations were identified involving storage of combustible material in safety related areas.

During this assessment period, general fire protection activities and housekeeping were under continuous review by the resident inspector. No programmatic inspections were performed. No violations in this area have been identified. Two Licensee Event Reports were submitted; one, the result of mechanical failure of a fire hydrant, the other involving personnel error when a cable penetration barrier was found in a degraded condition.

Management involvement in this area is evident by the assignment of a full time fire protection engineer, recent procedural revisions to provide better control of combustible material, and improved surveillance of fire barriers.

There were considerable problems causing delays in the installation and testing of a storage tank and pumping system to provide an alternate source of water to the fire protection system.

Several recent events involving wetting and ultimate impairment of safety related electrical equipment have demonstrated inadequacies in the original fire protection safety evaluation. High level management attention to this problem since the end of the assessment period has resulted in an extensive survey of plant systems and a program to waterproof and protect electrical components.

Housekeeping has improved during this assessment period as a result of more management attention. Radiological housekeeping conditions are generally acceptable with no significant NRC inspection findings in this area. Poor general plant cleanliness and appearance, however, continues to reflect poor plant staff attitudes and lack of professionalism/pride. An improving trend has been noted as a result of increased management attention.

Conclusion - Category 2*

Board Recommendations - None

*This rating is assigned without regard to the licensee's position on 10 CFR 50, Appendix R provisions.

6. Emergency Preparedness

No programmatic inspections were conducted in this area during the previous assessment period.

During the current assessment period, an emergency preparedness drill was observed by the resident inspector. The drill indicated weaknesses in the licensee's ability to implement the provisions of a revised emergency plan issued about one week prior to the drill. The licensee recognized the deficiencies which were also identified by several internal audits. An intensive upgrade program, which included significant increases in emergency planning staff, further emergency plan and procedure reviews, and intensive training, was begun.

An NRC team appraisal of emergency preparedness was conducted in January 1982 after the end of the assessment period. The appraisal identified significant weaknesses requiring corrective actions. These weaknesses included: required upgrading of emergency response facilities; improved capability for post accident sampling of stack effluent, reactor coolant, and containment atmosphere; emergency procedure improvement; and better definitions of the training program for emergency response personnel. The licensee's proposed corrective actions were discussed in a Confirmatory Action Letter dated February 18, 1982.

An NRC team observation of a major emergency preparedness exercise was conducted in March 1982. This observation determined that the licensee had demonstrated the capability to implement the provisions of the emergency plan to adequately protect the public health and safety during an accident, however, areas for improvement were noted and discussed with the licensee.

The licensee failed to meet the February 1, 1982 deadline for installation of a Public Notification System and was issued a Severity Level III Notice of Violation. Forty five warning sirens were installed and tested by February 26, 1982. The final siren was installed and tested on March 5, 1982.

Conclusion - Category 2*

Board Recommendations - None

*This categorization has been assigned on the bases of additional information developed after the assessment period and without regard to resolution of the outstanding issue of the Confirmatory Action Letter of February 18. 1982.

7. Security and Safeguards

During the previous assessment period, two routine inspections by region based inspectors, routine review of selected areas by the resident inspector, and one inspection by the Performance Appraisal Branch identified no violations or evidence of programmatic weaknesses. During one inspection, allegations by a former security watchman, which had been published in a local newspaper, were reviewed but could not be substantiated.

During the assessment period, two routine inspections by region based inspectors identified 7 violations. Six Severity Level IV violations were identified involving failure to secure a vital area barrier, use of improper identification badges, failure to conduct key audits, failure to perform explosives detector performance tests, inadequate lighting in two areas, and failure to retain certain records. Licensee's corrective action on these items, which were identified in one inspection, were discussed in a management meeting during this assessment period. One Severity Level V violation involving failure to properly control a vehicle within the protected area was identified in a subsequent inspection. The large number of violations are not indicative of major programmatic breakdowns. An inspection conducted since the end of the assessment period (December 7-11, 1981) identified no similar problems. Management attention is demonstrated by the prompt action to correct and prevent recurrence of the identified problems. Site management is generally responsive to security program requirements. Required reviews, audits and records are generally complete and show involvement by Corporate management. The security organization is well staffed with well defined responsibilities and adequately trained personnel. Procedural adherence is good with infrequent personnel errors.

Conclusion - Category 2

Board Recommendations - None

8. Refueling and Major Outage Activities

During the previous assessment period, one region based inspection and frequent resident inspector reviews of refueling and outage activities identified two violations involving procedural inadequacies and procedural adherence. One of the violations involved a major breakdown of administration controls causing failure to remove control rod interlock bypass jumpers prior to control cell fuel reload. This violation received high level management attention by the corporate General Office Review Board and the Independent Safety Review Group.

During the current assessment period, one region based inspection of post refueling testing and reload analysis was conducted. No violations were identified.

One scheduled and frequent unscheduled maintenance outages occurred during the assessment period. Considerable improvements in scheduling and coordination of outage activities were noted. This is due primarily to the assignment of a full-time Programs and Controls Manager who oversees outage planning. Scheduling activities generally addressed key outage and outage recovery items.

Some problems in the area of control of contractor work were noted as evidenced by one violation involving blocking of torus vacuum breakers by contractor erected scaffolding and an event involving an airborne release of radioactive material from the radwaste building ventilation system.

One region based inspection conducted after the assessment period, identified some weaknesses in the area of control of design changes and modifications. These findings, which are under review by NRC management, indicated that the management of the design changes and modification program is very fragmented with poor central control and review. Many procedures for the program are in draft form and many are still being prepared.

Training on modifications completed during outages is sometimes delayed until just prior to startup, and drawing revisions are sometimes delayed. This, together with insufficient management involvement in design change program, results in an occasional lack of coordination between engineering, construction, and operations staff during turnover of systems to operations control and in occasionally late implementation of revised procedures.

The licensee has a well staffed corporate technical engineering group. This group is still gaining site specific familiarity resulting in considerable reliance on contractors for engineering support.

Conclusion - Category 2

Board Recommendations - In light of the planned extended outage involving numerous and diverse modifications, increased inspection activity should be devoted to outage activities particularly during the early portion of the outage.

9. Licensing Activities

No specific assessment of licensing activities was performed during the prior assessment period; pertinent issues were included in other functional areas.

Licensing activities during the current assessment period included miscellaneous Technical Specification changes, a review of TMI Task Action Plan items, a major license amendment changing the license to GPU Nuclear Corporation, and replacement core spray sparger design.

The licensee's performance and management capabilities were generally adequate; however, the timeliness of responses has been poor with a two to three month time delay being the norm. Details of submittals are usually coordinated with the staff beforehand to establish requirements and clarity, and are generally good quality. However, some submittals relative to the Systematic Evaluation Program (SEP) and the TMI Task Action Plan (NUREG-0737) were not always complete and resulted in frequent requests by NRC for additional information. The licensee and his contractors have demonstrated adequate working knowledge of regulatory requirements and excellent levels of technical competence. The licensee's staffing is generally adequate, but in view of planned modifications and possible SEP upgrade requirements, may require increases.

Conclusion - Category 2

Board Recommendations - None

V. SUPPORTING DATA AND SUMMARIES

1. Licensee Event Reports

Tabular Listing

Type of Events:

A.	Personnel Error	8
B.	Design/Man./Constr./Install.	6
C.	External Cause	0
D.	Defective Procedure	6
E.	Component Failure	34
X.	Other	16
	Total	70

Licensee Event Reports Reviewed:

Report No. 80-49/01P through 81-55/03L

Causal Analysis

Seven sets of common mode events were identified:

a. LERs 80-50/3L, 80-52/3L, 80-55/3L, 80-56/3L, 80-57/3L, 80-60/3L, 80-63/3L, 81-01/3L, 81-06/3L, 81-10/3L, 81-11/3L, 81-12/3L, 81-13/3L, 81-15/3L, 81-21/3L, 81-26/3L, 81-40/3L, 81-49/3L, 81-51/3L, and 81-54/3L identified events in which surveillance testing found safety related instrument setpoints out of specification due to setpoint drift.

b. LERs 80-51/3L, 80-59/3L, 81-19/3L, 81-24/3L, and 81-32/3L involved missed surveillance tests caused by inadequate procedures (3 LERs) or personnel error (2 LERs).

c. LERs 80-53/3L, 80-54/3L, 80-62/3L, and 81-29/3L are events in which Control Rod Drive Hydraulic Pump failures caused (3 LERs) or contributed (1 LER) to the event.

d. LERs 80-58/3L, 80-61/3L, 81-09/3L, and 81-46/3L identified events in which hydraulic snubbers were found to be inoperable during surveillance testing.

e. LERs 81-02/3L, 81-41/1P, 81-42/1P, and 81-43/1P involved failure to continuously monitor the plant stack effluent activity due to failures of the sample system pumps.

f. LERs 81-07/3L and 81-37/3L reported incidents where the containment spray compartment water tight doors were left open.

g. LERs 81-22/1P, 81-25/1P, 81-27/3L, 81-30/1P, 81-33/1P, 81-48/3L, and 81-52/3L reported events where containment integrity was violated or degraded due to personnel error (3 LERs) or valve failure (4 LERs).

2. Investigation Activities

An investigation was conducted between October 6, 1980, and January 14, 1981 of the circumstances surrounding the transportation and use of shipping cask Model NFS-4, Serial NAC-1E, from the time it was shipped from Haddam, Connecticut, May 1, 1980, until it arrived at Camp Pendleton, California August 20, 1980. The cask arrived at Oyster Creek July 23, 1980 and was shipped from the site on August 15, 1980. No items of noncompliance were identified against this license.

3. Escalated Enforcement Actions

a. Civil Penalties

A civil penalty of $80,000 was assessed on August 21, 1981 for violation of Technical Specification Limiting Condition for Operation when one reactor building to suppression chamber vacuum breaker in each line was prevented from opening by contractor erected scaffolding.

b. Orders

Order Modifying License dated January 9, 1981 requiring an automatic system to initiate control rod insertion on low pressure in the scram air header pursuant to IEB 80-17. (Issued to all BWR Licensees).

Order Modifying License dated January 13, 1981 requiring assessment of suppression pool hydrodynamic loads and modifications to assure conformance with the criteria in NUREG-0661 Appendix A. (Issued to all licensees with Mark I Containments).

Order Modifying License dated March 24, 1981 extending the deadline date of the January 13, 1981 order.

Order Modifying License dated April 20, 1981 Implementing Technical Specifications on leak testing of certain motor operated valves. (Issued to all licensees with Event V isolation valve configurations within the boundary of high pressure to low pressure piping).

Order Modifying License dated July 7, 1981 confirming licensee commitments for TMI related requirements contained in NUREG-0737. (Issued to all licensees).

c. <u>Immediate Action Letters</u>

IAL 80-20 dated April 8, 1981 confirming actions to be taken to implement a pump and valve test program conforming to Section XI of the ASME Boiler and Pressure Vessel Code.

4. <u>Management Conferences Held During the Assessment Period</u>

Management Meeting at the Region I office on January 14, 1981 to discuss the Physical Security Program and the violations identified during Physical Security Inspection 50-219/80-36. (Meeting No. 50-219/81-02).

TABLE I

TABULAR LISTING OF LERs BY FUNCTIONAL AREA

OYSTER CREEK NUCLEAR GENERATING STATION

Area	Number/Cause Code	Total
1. Plant Operations	5/A, 4/B, 3/D, 17/E, 3/X	32
2. Radiological Controls	1/D, 1/E	2
3. Maintenance	3/E	3
4. Surveillance	2/A, 2/B, 1/D, 13/E, 13/X	31
5. Fire Protection	1/A, 1/E	2
6. Emergency Preparedness	None	
7. Security and Safeguards	None	
8. Refueling	None	
9. Licensing Activities	None	
	TOTAL	70

Cause Codes:
- A - Personnel Error
- B - Design, Manufacturing, Construction, or Installation Error
- C - External Cause
- D - Defective Procedures
- E - Component Failure
- X - Other

TABLE 2

OYSTER CREEK NUCLEAR GENERATING STATION

LER SYNOPSIS

NOVEMBER 1, 1980 - OCTOBER 31, 1981

LER Number	Type	Summary Description
80-49/01P	24 Hour	Degradation of the reactor coolant pressure boundary when the Isolation Condenser ve isolation valves failed to close.
80-50/03L	30 Day	Containment Spray System high drywell pressure switches IP-15A, IP-15B, IP-15C and IP-15D tripped at a value greater than that specified.
80-51/03L	30 Day	The required daily surveillance for APLHGR, LHGR, and MCPR was not performed.
80-52/03L	30 Day	Reactor triple low water level indicator switches RE-18A and RE-18D both tripped at values higher than specified.
80-53/03L	30 Day	Operation in a degraded mode when CRD pumps were removed from service to repair leaks.
80-54/03L	30 Day	Core Spray System I removed from service to inspect motors wetted by CRD pump leaks.
80-55/03L	30 Day	Core Spray High Drywell Pressure Switches tripped at values higher than specified.
80-56/03L	30 Day	Main Steam Line High Flow Pressure Switches tripped at values greater than specified.
80-57/03L	30 Day	Containment Spray System High Drywell Pressure Switches tripped at values greater than specified.
80-58/03L	30 Day	Two Hydraulic Snubbers failed to lock up during functional testing.
80-59/03L	30 Day	Diesel Generator Battery and Main Station Battery Monthly Surveillance not performed as required.
80-60/03L	30 Day	Isolation Condenser Pipe Break Sensors tripped at values greater than specified.

LER Number	Type	Summary Description
80-61/03L	30 Day	Three Hydraulic Snubbers failed to lock up during functional testing.
80-62/03L	30 Day	Operation in a degraded mode when CRDH Pump 'A' failed in service
80-63/03L	30 Day	Reactor Triple Low Water Level Switch tripped at a value greater than specified
81-01/03L	30 Day	Containment Spray High Drywell Pressure Switch tripped at higher value than required
81-02/03L	30 Day	Stack gas activity not continuously monitored due to sample pump failure.
81-03/03L	30 Day	Fire Hydrant number 2 declared inoperable due to a frozen barrel.
81-04/01P	24 Hour	Load on Emergency Diesels could exceed rated load on design basis accident.
81-05/03L	30 Day	Emergency service water pump 52B failed to demonstrate operability during testing.
81-06/03L	30 Day	Reactor Triple Low Level Switch tripped at value less conservative than required.
81-07/03L	30 Day	Violation of Tech Spec 3.4.E when the NE Containment Spray Water Tight Door was found open.
81-08/03L	30 Day	Water seeped through the west wall of NRW Building following flooding of chem waste tank vaults.
81-09/03L	30 Day	Hydraulic Snubber 23/3 found leaking oil and failed subsequent test.
81-10/03L	30 Day	MSL High Radiation Monitor RN06B tripped at a value higher than specified.
81-11/03L	30 Day	Iso-Condenser Isolation Pipe Break Sensor IB11B2 tripped at value greater than specified.

LER Number	Type	Summary Description
81-12/03L	30 Day	EMRV high pressure sensors 1A83C and 1A83E set points exceeded tech spec limit.
81-13/03L	30 Day	Core Spray High Drywell Pressure Sensor RV46B tripped at a value higher than specified.
81-14/01P	24 Hour	Primary containment atmosphere not reduced to less than 5% oxygen within 24 hours of startup.
81-15/03L	30 Day	Main Steam Line High Flow Sensors RE22F and RE22G tripped at values higher than specified.
81-16/03L	30 Day	Failure of packing in valve V-2-88 resulted in an unmonitored release of radioactive water.
81-17/03L	30 Day	Containment Spray System I inoperable due to loss of suction on ESW pumps when water level dropped at intake structure.
81-18/01P	24 Hour	Reactor building to suppression chamber vacuum breakers prevented from opening.
81-19/03L	30 Day	During normal shutdown IRM Calibration was not performed as required.
81-20/03L	30 Day	Water level in B Iso-Condenser less than specified due to instrument error.
81-21/03L	30 Day	Reactor high pressure sensors RE-03B, C, D trip settings higher than specified.
81-22/01P	24 Hour	Violation of containment when both personnel access airlock doors were open on the NE airlock.
81-23/03L	30 Day	Tech Spec LCO exceeded when drywell Torus DP was not within specified limits.
81-24/03L	30 Day	Emergency service water pumps found to be inoperable and required operability check of redundant pumps was not performed as specified.

LER Number	Type	Summary Description
81-25/01P	24 Hour	Violation of Secondary Containment Integrity when both railroad airlock doors were opened.
81-26/03L	30 Day	Iso-Condenser initiation pressure switch RE15A tripped at a value higher than specified.
81-27/03L	30 Day	Operation in a degraded mode when Number 2 TIP Ball Valve failed to close automatically.
81-28/03L	30 Day	Unmonitored release through new radwaste building ventilation ductwork.
81-29/03L	30 Day	Operation in a degraded mode when CRDH Pump 'B' motor bearing failed in service.
81-30/01P	24 Hour	Violation of Secondary Containment when exhaust valve V28-22 failed to close.
81-31/03L	30 Day	Operation in a degraded mode when the 'B' EMRV failed to open during testing.
81-32/03L	30 Day	Monthly channel checks of the accident monitoring instrumentation were not performed.
81-33/01P	24 Hour	Secondary Containment Integrity was violated when both NW airlock doors were found open.
81-34/03L	30 Day	Violation of Tech Spec when the peaking factor was 110% of the allowable limit.
81-35/03L	30 Day	Violation of Tech Spec when a degraded fire barrier was discovered and no fire watch was established.
81-36/03L	30 Day	Reactor Water Level Instrumentation for one channel in both RPS Systems were inoperable.
81-37/03L	30 Day	Violation of Tech Specs when SE containment spray compartment door was found open.

LER Number	Type	Summary Description
81-38/03L	30 Day	Tube rupture in A and C Shutdown Cooling Heat Exchanger while in cold shutdown.
81-39/03L	30 Day	Unmonitored release of radioactive water due to RBCCW heat exchanger tube failure.
81-40/03L	30 Day	EMRV High Pressure Sensors IA83B and C setpoints exceeded specified value.
81-41/01P	24 Hour	Stack Gas Activity was not continuously monitored due to trip of the 'A' Sample Pump.
81-42/01P	24 Hour	Stack Gas Activity was not continuously monitored due to trip of the 'B' Sample Pump.
81-43/01P	24 Hour	Stack Gas Activity was not continuously monitored due to air in-leakage at Sample Pump inlet.
81-44/03L	30 Day	Standby Gas Treatment Fan 1-8 was removed from service for corrective maintenance.
81-45/03L	30 Day	Iso-Condenser valve V-14-32 failed during performance of routine surveillance test.
81-46/03L	30 Day	Three hydraulic snubbers in the shutdown cooling system failed during functional testing.
81-47/03L	30 Day	Diesel Generator number 1 failed to achieve peak load during surveillance testing.
81-48/03L	30 Day	Degradation of primary containment integrity when RWCU Isolation Valve V-16-2 failed to close.
81-49/03L	30 Day	Containment Spray High Drywell Pressure Switches IP-15A and C tripped at values greater than specified.
81-50/03L	30 Day	Operation in a degraded mode when core spray pump pressure switch RV-29C failed to reset at the specified value.

LER Number	Type	Summary Description
81-51/03L	30 Day	Electromatic relief valve high pressure sensor IA83E setpoint exceeded the specified value.
81-52/03L	30 Day	Operating in a degraded mode when the in-shield limit switch for No. 2 TIP machine failed preventing ball valve from automatically closing.
81-53/03L	30 Day	Ability of offgas system to automatically isolate was lost for 13 hours due to broken power cable.
81-54/03L	30 Day	Main Steam Line Low Pressure Sensor RE 23D tripped at pressure lower than limit specified in the Tech Specification.
81-55/03L	30 Day	Acoustic Monitoring System (AMS) for safety and relief valve position indication found to have two channels that provided no or low response.

TABLE 3

INSPECTION HOURS SUMMARY (11/1/80 - 10/31/81)

OYSTER CREEK NUCLEAR GENERATING STATION

		HOURS	% OF TIME
1.	Plant Operations	1053	51
2.	Radiological Controls	223	11
3.	Maintenance	128	6
4.	Surveillance	201	10
5.	Fire Protection	85	4
6.	Emergency Preparedness	20	1
7.	Security and Safeguards	202	10
8.	Refueling	46	2
9.	Licensing Activitives	No Data Available	
10.	Other	104*	5
	**Total	2062	100%

* 104 hours of region based investigation in response to a radioactively contaminated spent fuel shipping cask.

** Allocations of inspection hours vs. Functional Areas are approximations based on inspection report data.

TABLE 4

INSPECTION REPORT ACTIVITIES

OYSTER CREEK NUCLEAR GENERATING STATION

REPORT	INSPECTOR	AREAS INSPECTED
80-33	Resident	Routine
80-34	Specialist	Post-Refueling Testing
80-35	Resident	Routine
80-36	Specialist	Physical Security
80-37	Specialist	Transportation
80-38	Investigator	Shipping Cask Contamination
81-01	Resident	Routine
81-02	---	Management Meeting
81-03	Resident	Routine
81-04	Specialist	Radiation Protection
81-05	Specialist	Surveillance, Calibration
81-06	Resident	Routine
81-07	Specialist	In-Service Inspection
81-08	Specialist	In-Service Testing, Quality Assurance, Design Changes, Maintenance
81-09	Specialist	Radiation Protection
81-10	Resident	Routine
81-11	Resident	Routine
81-12	Resident	Routine
81-13	Specialist	Physical Security

Table 4 (Con'td)

REPORT	INSPECTOR	AREAS INSPECTED
81-14	Resident	Routine
81-15	Specialist	Radiation Protection
81-16	Resident	Routine
81-17	Resident	Shutdown Cooling Heat Exchanger Failure
81-18	Resident	Routine
81-19	Resident	Routine
81-20	Specialist	Independent Measurements

TABLE 5

VIOLATIONS (11/1/80 - 10/31/81)

OYSTER CREEK NUCLEAR GENERATING STATION

A. Number and Severity Level of Violations

1. Severity Level

Severity Level I	0
Severity Level II	1
Severity Level III	2
Severity Level IV	16
Severity Level V	13
Severity Level VI	3
Total	35

B. Violations Vs. Functional Area

	Severity Levels					
FUNCTIONAL AREAS	I	II	III	IV	V	VI
1. Plant Operations		1		4	5	2
2. Radiological Controls			2	2	2	
3. Maintenance					2	
4. Surveillance				4	3	1
5. Fire Protection						
6. Emergency Preparedness						
7. Security & Safeguards				6	1	
8. Refueling						
9. Licensing Activities						
Totals		1	2	16	13	3

Total Violation = 35

TABLE 5

ENFORCEMENT DATA

OYSTER CREEK NUCLEAR GENERATING STATION

November 1, 1980 - October 31, 1981

Inspection Number	Inspection Date	Subject	Req.	Sev.	Area
80-36	12/13-19/80	Failure to secure vital area barriers	PSP	IV	7
80-36	12/13-19/80	Use of improper I.D. badge	PSP	IV	7
80-36	12/13-19/80	Failure to conduct protected area key audit and failure to change safe combinations	PSP	IV	7
80-36	12/13-19/80	Explosives detector performance tests were not conducted	PSP	IV	7
80-36	12/13-19/80	Inadequate lighting at locations in the protected area	PSP	IV	7
80-36	12/13-19/80	Failure to retain certain records as required	PSP	IV	7
80-37	12/30/80	LSA radioactive material was delivered to a carrier for transport in a package that was not a strong, tight package	49CFR 173	III	2
80-37	12/30/80	LSA radioactive material was delivered to a carrier for transport without properly describing the physical form of the material in the shipping papers	49CFR 173	III	2
81-01	1/5-31/81	Annunciator and Alarm procedures was not followed	TS	V	1
81-03	2/2-28/81	Failure to follow dosimetry issue procedures	TS	V	2

Inspection Number	Inspection Date	Subject	Req.	Sev.	Area
81-04	3/2-681	Administrative Control requirements for procedure changes were not followed	TS	V	2
81-05	3/9-13/81	Test gauges used for safety related calibrations are not of acceptable accuracy or readability for the calibrations being performed	AppB	V	4
81-05	3/9-13/81	Calibrations are performed on safety related instruments without using approved procedures, and diesel generator KW and KVAR meters and fire pump RPM meters are not being calibrated	TS	V	4
81-05	3/9-13/81	Failure to test valves as required by the inservice test program	AppB	V	4
81-05	3/9-13/81	PORC meeting minutes are not being distributed to the ISRG and GORB as required by T.S.6.5.4.1	TS	V	1
81-05	3/9-13/81	Annual reviews of operating procedures were not performed	TS	VI	1
81-05	3/9-13/81	Calibration data was omitted from instrument history cards and had not received supervisory review	TS	VI	4
81-05	3/9-13/81	The core spray pump test procedure was not revised to reflect that the fill pumps no longer operate automatically	TS	VI	1
81-06	3/1-31/81	Safety related material was purchased on requisition 61619 without OQA review	AppB	V	3
81-08	3/30-4/3/81	Pump operability tests were not performed in accordance with Section XI of the ASME B&PV Code	AppB	IV	4
81-08	3/30-4/3/81	Handling, Storage, and preservation of materials and equipment to prevent damage or deterioration, and the cleanliness of the Level B storage area were not in conformance with ANSI N45.2.2	AppB	V	3

Inspection Number	Inspection Date	Subject	Req.	Sev.	Area
81-10	4/1-30/81	One reactor building to suppression chamber vacuum breaker in each line was rendered inoperable by the placement of contractor erected scaffold	TS	II	1
81-10	4/1-30/81	Corrective action has been ineffective in correcting conditions adverse to quality which present the potential for the release of radioactive material from the condensate transfer pump building	AppB	IV	1
81-11	5/1-30/81	Several electrical jumpers were found improperly installed or disconnected	TS	V	1
81-12	6/1-30/81	The required daily surveillance was not performed on emergency service water pumps when the redundant pumps were inoperable	TS	IV	4
81-12	6/1-30/81	A high radiation area was not locked or guarded to prevent unauthorized entry	TS	IV	2
81-13	6/8-12/81	A vehicle in the protected area was left unlocked, unattended with the keys in the ignition	PSP	V	7
81-14	7/1-30/81	Secondary containment integrity was not maintained as required when valve V-28-22 was inoperable and not secured in the closed position	TS	IV	1
81-14	7/1-30/81	Instrument channel checks of the accident monitoring instruments were not performed monthly from May 8, 1981 to July 13, 1981	TS	IV	4
81-14	7/1-30/81	The southeast containment spray pump compartment water tight door was left open in violation of technical specification	TS	IV	1

Table 5 (Con't)

Inspection Number	Inspection Date	Subject	Req.	Sev.	Area
81-16	8/4-9/14/81	Personnel entered a high radiation area without proper radiation dose rate monitoring equipment	TS	IV	2
81-16	8/4-9/14/81	Failure to follow procedures during performance of surveillance test	TS	V	1
81-17	8/27-10/19/81	Failure to report an unplanned, uncontrolled radicactive liquid release	10CFR 50.72	IV	1
81-18	9/15-10/5/81	Failure to follow procedures for conduct of shift turnover	TS	V	1
81-18	9/15-10/5/81	Failure to implement test procedures with adequate acceptance criteria for the station batteries	AppB	IV	4

ENCLOSURE 3

Nuclear

GPU Nuclear
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Parsippany, New Jersey 07054
201 263-6500
TELEX 136-482
Writer's Direct Dial Number

May 6, 1982

Mr. Richard Starostecki, Director
Division of Project and Resident Programs
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Starostecki:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Systematic Assessment of Licensee Performance (SALP)

Your letter of April 7, 1982 provided, for our review and response, a draft Systematic Assessment of Licensee Performance (SALP) report concerning activities conducted at the Oyster Creek Nuclear Generating Station for the period November 1, 1980 through October 31, 1981. Attachment I to this letter provides our responses to the maintenance and surveillance areas which were classified as areas of weakness.

In addition to our specific responses concerning those two areas, we are taking this opportunity to provide comments on the other areas which were evaluated. The additional comments, also contained in Attachment I, are provided to help meet the SALP objective of furthering NRC's understanding in how the licensee management directs, guides, and provides resources for assuring plant safety.

Very truly yours,

Philip R. Clark

Philip R. Clark
Executive Vice President
GPU Nuclear Corporation

cc: Mr. Ronald C. Haynes, Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

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ATTACHMENT I

Subject: Responses and Comments to the NRC Systematic Assessment of Licensee Performance (SALP)

Evaluation Period: November 1, 1980 Through October 31, 1981

Summary of NRC Evaluation:

FUNCTIONAL AREAS	OYSTER CREEK NUCLEAR GENERATING STATION CATEGORY 1	CATEGORY 2	CATEGORY 3
1. Plant Operations		X	
2. Radiological Controls		X	
3. Maintenance			X
4. Surveillance (Including Inservice and Preoperational Testing)			X
5. Fire Protection and Housekeeping		X	
6. Emergency Preparedness		X	
7. Security & Safeguards		X	
8. Refueling		X	
9. Licensing Activities		X	

Category Definitions:

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.

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.

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 appeared strained or not effectively used such that minimally satisfactory performance with respect to operational safety and construction is being achieved.

1. Plant Operations - NRC Evaluation

During the previous assessment period, (August 1, 1979 - July 31, 1980), several violations were identified involving procedural inadequacies, inadequate mechanisms for issuance of management instructions, and failure to follow procedures. Of particular importance was an incident involving failure to remove control rod interlock bypass jumpers prior to completion of control cell fuel reload. Programmatic weaknesses were identified in the area of adherence to management controls procedures at the lower management and supervisory levels, and in the area of meeting commitments to the NRC. An improving trend was noted as licensee management responded in a positive manner to address the identified weaknesses.

This area was under continuing review by the resident inspector for the current (November 1, 1980 - October 31, 1981) assessment period. Twelve operations related violations were identified. Failure to follow procedures resulted in four Severity Level V violations. Inadequacies in the area of administrative controls resulted in one Severity Level V violation when PORC meeting reports were not properly distributed, and two Severity Level VI violations involving failure to properly review or revise operating and surveillance procedures. Two Severity Level IV violations were identified involving failure to recognize a containment integrity violation when an isolation valve failed during testing, and recurrent violations of technical specifications when containment spray compartment water tight doors were left open. Failure to report an unplanned radioactive release and inadequate corrective action on recurrent spills of radioactive liquid resulted in two Severity Level IV violations. One Severity Level II violation involving vacuum breaker blockage was indicative of inadequate controls over activities affecting plant operations, and sometimes inadequate tours of the plant by operations personnel. Thirty-two licensee event reports were related to the operations area. Reports were generally timely and accurately identified the causes and corrective actions needed.

Improvements have been noted in management involvement in this area. The licensee has implemented a Nuclear Assurance Department Operations Support Program. The program involves the assignment of an Assistant to the Plant Operations Director and Shift Assistants who are tasked with reviewing plant operations and making recommendations for improvement in the areas of procedural adequacy, procedural adherence, and control of activities that have an impact on operations. Also, corporate management has issued policy statements stressing verbatim compliance with operating procedures and has begun vigorously enforcing the policy.

This program has resulted in many improved procedures, improved procedural adherence, improved operation awareness and understanding of plant activities, improved followup of operations identified maintenance concerns, and improved operator morale. The program has relieved some management and supervisory personnel of administrative burdens, allowing more timely and thorough reviews of activities.

The development of a "programs and controls" group has improved the scheduling and prioritization of work activities and the coordination between maintenance and operations.

Some problems still exist with operator knowledge of regulatory requirements. These problems are evidenced by the following:

(1) Failure to recognize malfunction of a TIP in-shield limit switch as a degradation of containment intgrity.

(2) Failure to recognize failure of a reactor building ventilation isolation valve as a degradation of containment integrity.

(3) Interpretation of exceeding a peaking factor limit during a power transient as a "Safety Limit Violation".

Licensee corrective and preventive actions have been generally acceptable and indicative of a responsiveness to NRC concerns.

Conclusion - Category 2

Board Recommendations - None

GPU Nuclear Corporation Comments:

The third paragraph in the above evaluation references a Nuclear Assurance Department Operations Support Program. This is a misnomer. The comment is made in order to avoid confusion between activities conducted by our Nuclear Assurance division and this program.

The program consisted of temporarily assigning experienced personnel, from other divisions within GPUNC, including the Nuclear Assurance Division, to aid in the site specific activities of the Operations, Maintenance and Plant Engineering departments of the Oyster Creek Division. These specific assignments were made on a temporary basis to fill vacant positions. At the present time, the temporarily assigned personnel have returned to their respective divisions. Continuity of the program will be based on an overall evaluation of the program and permanent personnel have been placed in many positions.

With regard to the statement in the last paragraph of the evaluation that some problems still exist with operator knowledge of regulatory requirements, a comprehensive formal refresher training program has been developed for Operations Shift Supervisors in the area of Technical Specification and regulatory requirements. The results achieved by a program of this nature would not be observable in the short term, but are expected to result in improvements in this area.

2. Radiological Controls - NRC Evaluation

The previous assessment period identified several areas of major concern. Programmatic problems included inadequate staffing, use of personnel not meeting ANSI N18.1-1971 standards, procedures inconsistent with Technical Specifications, and poor control in the area of transportation of radioactive waste. Nineteen violations were identified and one civil penalty was assessed for inadequate radiation work permit procedures. An improving trend was noted in the latter part of the assessment period when action was taken to upgrade the radiation protection training program, increase the size and quality of the radiation protection staff, and implement organizational changes to put direct management attention in the areas of radwaste operations and shipping.

During the current assessment period, four inspections were performed by region based inspectors in the area of radiological controls. One included a review of the radwaste management program and two included review of effluent monitoring and control. In addition, one regional office evaluation of a State of Nevada burial site inspection, and one investigation of NAC-1E shipping cask event were conducted. Selected activities in this area were under continuous review by the resident inspector. Six violations, two Severity Level III's associated with radioactive waste transportation, two Severity Level IV's associated with control of high radiation area access, and two Severity Level V's associated with dosimetry issue procedures and control of procedure changes were identified. These items were not repetitive or indicative of programmatic breakdowns. Corrective actions were timely.

Two licensee event reports identified unmonitored uncontrolled liquid releases. Four operations related event reports identified failures to monitor gaseous effluents due to sample system breakdowns. The events were properly classified and reported.

Management involvement in this area is evidenced by the major reoganization of the radwaste management program and generally well defined procedures. However, lack of formal approval of Radiation Control Technician training program remains a long-standing issue. The General Employee Training Program contributes to fair adherence to procedures and minor numbers of personnel errors. The plant staffing appears to be adequate and the radiological engineering reviews show evidence of adequate planning and technically sound approaches to problems.

Conclusion - Category 2

Board Recommendations - None

GPU Nuclear Corporation Comments:

The radiological Field Operations Training Program, referred to in the fourth paragraph, has now been submitted for NRC review and approval. As you are aware, until NRC approves this program, each member of the radiation protection organization, for which there is a comparable position described in ANSI N18.1-1971, meets or exceeds the minimum qualifications specified therein.

3. Maintenance - NRC Evaluation:

Three inspections during the previous assessment period identified no violations. Three of four maintenance related event reports involved personnel error. The assessment concluded that the licensee had a viable maintenance program with no major programmatic weaknesses.

During the current assessment period, one region based inspection and routine inspection by the resident inspector identified no violations. In an effort to improve the maintenance program, the licensee has assigned a full time preventive maintenance manager and a full time corrective maintenance manager reporting to the plant maintenance manager. This has placed increased management attention on the control of maintenance activities; however, there is a lack of corporate and plant management involvement in the review and prioritization of outstanding maintenance items and an apparent understaffing in maintenance departments. There is a large backlog of outstanding work orders and frequent instances where job orders are closed out when only temporary repairs are completed, or where job orders considered to be of minor importance are cancelled.

In addition to a backlog of maintenance orders, there is a large number of long-standing lifted leads and jumpers. These have not been closed because of incomplete maintenance modifications which did not include permanent removal of abandoned components, or the need for further engineering review.

The preventive maintenance program is being expanded and crews dedicated specifically to preventive maintenance are being formed. This program presently involves primarily instrumentation and lubrication. Maintenance records are reviewed by a preventive maintenance engineer who is developing machinery history records, but this program has not yet been developed to the point that maintenance trend analysis can be performed.

In addition to marginal maintenance history records, the availability of current equipment data is a weakness. Controlled files of equipment data with component model and serial numbers, parts lists, and engineering drawings are not always up to date. For example, the controlled valve list does not reflect the fact that the reactor building to suppression chamber air operated vacuum breakers were replaced with valves made by a different manufacturer in 1979.

The licensee's response to NRC initiatives is sometimes delayed. For example, corrective actions on a 1977 IE Circular relating to fuse coordination in Standby Liquid Control system Squib firing circuits, a 1979 IE Circular relating to defective diesel fire pump starting contractors, and a 1979 IE Circular on Limitorque valve operator locking devices were not completed until the NRC expressed concern for lack of responsiveness.

An event during the assessment period involving blockage of torus vacuum breaker valves by contractor erected scaffolding resulted in a Severity Level II violation and assessment of a civil penalty. Another event involved an unmonitored airborne release of radioactive material from the radwaste building ventilation system. These events are indicative of inadequate control of contractor work. After the assessment period, an event involving improper assesmbly and testing of a torus vacuum breaker valve was discovered. The action resulted in one torus vacuum breaker being inoperable for about 18 months during reactor operation. This event, which is still under review by the NRC, indicates that a strengthening of management control and procedural control over maintenance activities is necessary.

The licensee has implemented a program of increased management involvement in maintenance activities. In addition, recent staffing changes which have placed individuals with extensive maintenance background in upper-level management positions have resulted in an improving trend in this area.

<u>Conclusion</u> - Category 3

<u>Board Recommendations</u> - Increased inspection effort by the resident inspector.

<u>GPU Nuclear Corporation Comments::</u>

The evaluation period (November 1, 1980 through October 31, 1981) coincides with the reorganization of our Maintenance Department in September 1980 and as such, covers a transition period. Current activities now meet most of the goals of the reorganization and satisfactorily address many of the concerns of the above evaluation. The following paragraphs provide examples of how the reorganization has effected positive changes which, toward the end of the evaluation period and subsequent thereto, have become clear:

The second paragraph of the evaluation contains the statement "... there is a lack of corporate and plant management involvement in the review and prioritization of outstanding maintenance items ...". Procedure No. 105 "Conduct of Maintenance" ensures that management reviews and prioritizes each job order. The prioritization of job orders has been in effect since January of 1981 and consists of assigning one of four priorities. "Urgent 1" is the most immediate priority and indicates that work should be started within one day. This priority includes emergency maintenance initiated by the Group Shift Supervisor and other work considered likely to cause any of the following conditions within three days:

1. Personnel injury

2. Significantly increased contamination or radiation hazard

3. Unplanned, uncontrolled release of radioactive material to the environment in excess of normal release rates

4. Significant damage to safety-related equipment needed for safe plant shutdown

5. Violation of Technical Specifications

6. Immediate plant shutdown or load reduction

The remaining three categories involve problems of a lesser severity and guidance is given in the procedure for assigning priorities.

The second paragraph also refers to "... an apparent understaffing in maintenance departments ...". We have increased our first line supervisor to worker ratio. Currently, our average ratio is one supervisor per ten to twelve workers. The key maintenance positions are now filled and implementation of the desired program is being effected. We believe that our present emphasis on more effective use of supervision, emphasizing supervisor presence on the job site and better planning, in addition to the improved supervisor to worker ratio, will help effect the desired improvements.

The last sentence in the second paragraph states "There is ~~a~~ large backlog of outstanding work orders and frequent instances where job orders are closed out when only temporary repairs are completed, or where job orders considered to be of minor importance are cancelled." There are a large number of outstanding work orders, many as a result of our increased efforts to identify what work needs to be accomplished. However, as identified above, all job orders are prioritized according to specified criteria and the majority of outstanding job orders are in the minor category.

With regard to job orders being closed out inappropriately, Procedure 105 currently requires that a job order may only be cancelled by the applicable Maintenance Supervisor after obtaining concurrence of the initiating department supervisor. The procedure also identifies when temporary repairs are effected or further modification to the existing system is required, the temporary repair job order may be closed out. A new job order is initiated for execution when materials and/or the modification package is available.

With regard to the large number of long-standing lifted leads and jumpers referred to in the third paragraph, we have recently completed a review of and dispositioned all lifted leads and jumpers where possible. The unresolved remaining items have been identified and are being referred to engineering for permanent resolution.

The fourth paragraph in the evaluation discusses the preventative maintenance program. We feel this area has been greatly improved, since reorganization in September 1980. The present program includes electrical, mechanical, instrumentation and lubrication activities. Maintenance history cards are now updated whenever corrective or preventative maintenance is performed. Although past history of maintenance may, in some cases, be unretrievable, current practices will ensure that future trend analysis will be achievable.

Our responsiveness to NRC initiatives is now coordinated through the Licensing Department. Each item is assigned to the cognizant department and tracked by a formal program until completion of the assignment is effected. Outstanding items are brought to the attention of upper management and a summary report is provided to the Office of the President on a monthly basis. The current program should help ensure that events such as the examples cited in the evaluation will not be of a recurrent nature.

With regard to control of contractor activities, our corrective actions, as you are aware, are described in our response to the Notice of Violation dated September 21, 1981. The controls imposed have had a positive effect in that potential problems are identified and corrected prior to conducting work activities.

4. <u>Surveillance - NRC Evaluation</u>

During the previous assessment period, six routine unannounced inspections by region based inspectors, one Performance Appraisal Branch Inspection and routine inspection by the resident inspector identified three violations. The licensee had failed to perform surveillances on three occasions.

During the current assessment period, two region based inspections, one regional based team inspection, and routine resident reviews identified eight violations. The violations involved failure to conduct Technical Specification and ASME Section XI testing, inaccurate calibration, calibration and testing without procedure, and inadequate calibration data and procedural changes.

Corrective action was agreed to in an Immediate Action Letter dated April 8, 1981. The licensee agreed to upgrade his inservice test program to meet the requirements of ASME Code Section XI by January 1, 1982. After the assessment period, region based inspectors found that the licensee had not completed all corrective action, in that a program for valve testing was not fully implemented. The licensee has since submitted a revised completion schedule to NRC:RI. The licensee stated that operational commitments and manpower shortages were the reasons for not meeting the commitments. The high number of violations and the failure to meet commitment dates without notification, indicate weakness in licensee management control in this area.

The large number of event reports resulting from instrument drift and the long standing nature of this issue indicates a need for high level management involvement in this area to achieve technically acceptable resolution. Violations resulting from missed surveillances, in particular a Severity Level IV violation involving failure to survey Emergency Service Water pumps following unacceptable surveillance on redundant pumps, indicate a need for more management attention in review of surveillance programs and assuring unambiguous acceptance criteria.

This need is further amplified by a violation that occurred after the assessment period. Three successive failures of an isolation condenser valve during operability testing followed by two successful operations of the valve, with no followup investigation to determine the cause of the failures, was interpreted by a member of the management staff as acceptable component performance.

<u>Conclusion</u> - Category 3

<u>Board Recommendations</u> - None

<u>GPU Nuclear Corporation Comments:</u>

Several violations that are referenced in the above evaluation involved a failure to comply with the surveillance requirements of recently approved Technical Specification changes. Our practice had been that follow-up to Technical Specification changes, such as the drafting of procedures, was not initiated until after NRC had approved the change. At present, the Surveillance Testing Program is administered by the Plant Engineering Department and compliance to Technical Specifications is accomplished through the maintenance of the surveillance testing schedule and implementing procedures.

To improve the implementation of Technical Specification changes, Plant Engineering will review all pending Technical Specification Change Requests and assure that all aspects relative to the specific changes are prepared in anticipation of approval. Once approved, the draft procedures will be reviewed again for changes, which may have occurred due to NRC review, and cycled through our internal cycle for final approval and implementation. Under this program, a change to Technical Specifications should be implemented within 30 days after issuance.

As you are aware, the common NRC practice of making Technical Specification changes "effective upon date of issuance" has been addressed by us in previous correspondence as being impractical to implement. We request that all changes to Technical Specifications become effective 30 days after receipt by the licensee unless requested otherwise.

In addition to the above planned actions, Plant Engineering has instituted training in the area of Technical Specifications. All engineering personnel will be required to attend. The classroom instruction will be presented by the BWR Licensing Manager and is scheduled to be conducted during May of 1982.

An integrated training program is being developed to educate each member of the Plant Engineering staff with regard to general BWR knowledge. Specific system responsibility will be assigned to individuals who will be expected to acquire knowledge comparable to operations personnel for the systems assigned to them. This is expected to raise the overall system level knowledge with regard to plant operations to a level considerably higher than before. Training in the specific system areas is expected to begin in July of 1982.

We feel the violations referenced in the evaluation regarding the Emergency Service Water Pumps and the Isolation Condenser Valve do not indicate a programmatic weakness in the surveillance program. The decision to declare the Emergency Service Water Pumps operable was based on previous knowledge and experience of system performance. Management's decision was based on knowledge that should have been incorporated into the procedure; however, in absence of procedure criteria, the pump should have been declared inoperable. With regard to the Isolation Condenser valve operability, the cause can be attributed to poor judgement. This event has been discussed with plant operations personnel and management direction to make such judgement conservatively from a safety standpoint has been reemphasized.

5. Fire Protection and Housekeeping - NRC Evaluation

Three inspections by region based inspectors and one Performan[illegible] ppraisal Branch inspection during the previous assessment period ident[illegible]d no major programmatic weaknesses. Two violations were identified involving storage of combustible material in safety related areas.

During this assessment period, general fire protection activities and housekeeping were under continuous review by the resident inspector. No programmatic inspections were performed. No violations in this area have been identified. Two Licensee Event Reports were submitted; one, the result of mechanical failure of a fire hydrant, the other involving personnel error when a cable penetration barrier was found in a degraded condition.

Management involvement in this area is evident by the assignment of a full time fire protection engineer, recent procedural revisions to provide better control of combustible material, and improved surveillance of fire barriers.

There were considerable problems causing delays in the installation and testing of a storage tank and pumping system to provide an alternate source of water to the fire protection system.

Several recent events involving wetting and ultimate impairment of safety [illegible]lated electrical equipment have demonstrated inadequacies in the original fire protection safety evaluation. High level management attention to this problem since the end of the assessment period has resulted in an extensive survey of plant systems and a program to waterproof and protect electrical components.

Housekeeping has improved during this assessment period as a result of more management attention. Radiological housekeeping conditions are generally acceptable with no significant NRC inspection findings in this area. Poor general plant cleanliness and appearance; however, continues to reflect poor plant staff attitudes and lack of professionalism/pride. An improving trend has been noted as a result of increased management attention.

Conclusion - Category 2*

Board Recommendations - none

*This rating is assigned without regard to the licensee's position on 10 CFR 50, Appendix R provisions.

GPU Nuclear Corporation Comments:

As a result of increased management attention in the area of housekeeping, we feel there has recently been considerable improvements in plant cleanliness and appearance. We feel the continued emphasis will elevate the pride of the entire plant staff.

6. Emergency Preparedness - NRC Evaluation

No programmatic inspections were conducted in this area during the previous assessment period.

During the current assessment period, an emergency preparedness drill was observed by the resident inspector. The drill indicated weaknesses in the licensee's ability to implement the provisions of a revised emergency plan issued about one week prior to the drill. The licensee recognized the deficiencies which were also identified by several internal audits. An intensive upgrade program, which included significant increases in emergency planning staff, further emergency plan and procedure reviews, and intensive training, was begun.

An NRC team appraisal of emergency preparedness was conducted in January 1982 after the end of the assessment period. The appraisal identified significant weaknesses requiring corrective actions. These weaknesses included: required upgrading of emergency response facilities; improved capability for post accident sampling of stack effluent, reactor coolant, and containment atmosphere; emergency procedure improvement; and better definitions of the training program for emergency response personnel. The licensee's proposed corrective actions were discussed in a Confirmatory Action Letter dated February 18, 1982.

An NRC team observation of a major emergency preparedness exercise was conducted in March 1982. This observation determined that the licensee had demonstrated the capability to implement the provisions of the emergency plan to adequately protect the public health and safety during an accident, however, areas for improvement were noted and discussed with the licensee.

The licensee failed to meet the February 1, 1982 deadline for installation of a Public Notification System and was issued a Severity Level III Notice of Violation. Forty-five warning sirens were installed and tested by March 5, 1982. The final siren was installed and tested on March 11, 1981.

Conclusion - Category 2

Board Recommendations - None

*This categorization has been assigned on the bases of additional information developed after the assessment period and without regard to resolution of the outstanding issue of the Confirmatory Action Letter of February 18, 1982.

GPU Nuclear Corporation Comments:

The last paragraph in the above evaluation contains two minor errors concerning the installation dates of our warning sirens. As we indicated in the response to the Notice of Violation, forty-five (45) warning sirens were installed and tested by February 26, 1982. The final siren was installed and tested on March 5, 1982. Since the SALP evaluation, we note that NRC, by their letter of April 28, 1982, has evaluated our overall response to this matter and advised us that they plan no further action.

7. Security and Safeguards - NRC Evaluation

During the previous assessment period, two routine inspections by region based inspectors, routine review of selected areas by the resident inspector, and one inspection by the Performance Appraisal branch identified no violations or evidence of programmatic weaknesses. During one inspection, allegations by a former security watchman, which had been published in a local newspaper, were reviewed but could not be substantiated.

During the assessment period, two routine inspections by region based inspectors identified 7 violations. Six Severity Level IV violations were identified involving failure to secure a vital area barrier, use of improper identification badges, failure to conduct key audits, failure to perform explosives detector performance tests, inadequate lighting in two areas, and failure to retain certain records. Licensee's corrective action on these items, which were identified in one inspection, were discussed in a management meeting during this assessment period.

One Severity Level V violation involving failure to properly control a vehicle within the protected area was identified in a subsequent inspection. The large number of violations are not indicative of major programmatic breakdowns. An inspection conducted since the end of the assessment period (December 7-11, 1981) identified no similar problems. Management attention is demonstrated by the prompt action to correct and prevent recurrence of the identified problems. Site management is generally responsive to security program requirements. Required reviews, audits and records are generally complete and show involvement by Corporate management. The security organization is well staffed with well defined responsibilities and adequately trained personnel. Procedural adherence is good with infrequent personnel errors.

Conclusion - Category 2

Board Recommendations - None

GPU Nuclear Corporation Comments:

None.

8. Refueling and Major Outage Activities - NRC Evaluation

During the previous assessment period, one region based inspection and frequent resident inspector reviews of refueling and outage activities identified two violations involving procedural inadequacies and procedural adherence. One of the violations involved a major breakdown of administration controls causing failure to remove control rod interlock bypass jumpers prior to control cell fuel reload. This violation received high level management attention by the corporate General Office Review Board and the Independent Safety Review Group.

During the current assessment period, one region based inspection of post refueling testing and reload analysis was conducted. No violations were identified.

One scheduled and frequent unscheduled maintenance outages occurred during the assessment period. Considerable improvements in scheduling and coordination of outage activities were noted. This is due primarily to the assignment of a full-time Programs and Controls Manager who oversees outage planning. Scheduling activities generally addressed key outage and outage recovery items.

A completed modification, under this program, will be accepted based on the completion of preestablished conditions. The conditions specified for each modification will be formulated at a planning meeting after construction activities have been authorized. Preestablished conditions being addressed include:

1. Training completed for operations personnel concerning the installed modification

2. All applicable operating procedures revised

3. Required spare parts identified

4. Preventative Maintenance Procedures written and Preventative Maintenance schedule updated

5. All applicable drawings revised

6. Surveillance procedures and the Master Surveillance schedule revised

The interfacing departments or divisions assigned responsibility for completion of the preestablished conditions will meet formally to verify and sign-off that the modification can be put into service.

The following departments will be involved as appropriate:

1.	Plant Operations	- Oyster Creek Division
2.	Plant Maintenance	- Oyster Creek Division
3.	Plant Engineering	- Oyster Creek Division
4.	Project Engineering	- Technical Functions
5.	Start-Up and Test	- Technical Functions
6.	Maintenance and Construction	- Maintenance and Construction
7.	Training and Quality Control	- Nuclear Assurance Division
8.	Configuration Control	- Technical Functions

Procedure No. 124 "System/Equipment Turnover After Modification" is presently being reviewed and revised to address the above program. Additional procedures, if deemed necessary, will be developed.

In addition to this program, Plant Engineering will assign an engineer as the "plant contact" for each modification authorized through the Technical Functions division. The intention of the plant contact is to provide Plant Engineering awareness and follow-up of the modification such that appropriate documents, i.e., operations, maintenance, and surveillance procedures, vendor's manuals spare parts list, etc., are in the development stage as the modification is progressing.

Some problems in the area of control of contractor work were noted as evidenced by one violation involving blocking of torus vacuum breakers by contractor erected scaffolding and an event involving an airborne release of radioactive material from the radwaste building ventilation system.

One region based inspection conducted after the asessment period, identified some weak ses in the area of control of design changes and modifications. These indings, which are under review by NRC ma agement, indicated that the management of the design changes and modification program is very fragmented with poor central control and review. Many procedures for the program are in draft form and many are still being prepared.

Training on modifications completed during outages is sometimes delayed until just prior to startup, and drawing revisions are sometimes delayed. This, together with insufficient management involvement in design change program, results in an occasional lack of coordination between engineering, construction, and operations staff during turnover of systems to operations control and in occasionally late implementation of revised procedures.

The licensee has a well staffed corporate technical engineering group. This group is still gaining site specific familiarity resulting in considerable reliance on contractors for engineering support.

Conclusion - Category 2

Board Recommendations - In light of the planned extended outage involving numerous and diverse modifications, increased inspection activity should be devoted to outage activities particularly during the early portion of the outage.

GPU Nuclear Corporation Comments

We have had under development since early 1981, an integrated and improved system of controls for work being done in the plant. Improvements have been and are being implemented on an individual basis. The improved system is scheduled to be in effect prior to the upcoming outage. The system will require a formal turnover to plant operations of all newly installed modifications.

9. Licensing Activities - NRC Evaluation

No specific assessment of licensing activities was performed during the prior assessment period; pertinent issues were included in other functional areas.

Licensing activities during the current assessment period included miscellaneous Technical Specification changes, a review of TMI Task Action Plan items, a major license amendment changing the license to GPU Nuclear Corporation, and replacement core spray sparger design.

The licensee's performance and management capabilities were generally adequate; however, the timeliness of responses has been poor with a two to three month time delay being the norm. Details of submittals are usually coordinated with the staff beforehand to establish requirements and clarity, and are generally good quality. However, some submittals relative to the Systematic Evaluation Program (SEP) and the TMI Task Action Plan (NUREG-0737) were not always complete and resulted in frequent requests by NRC for additional information. The licensee and his contractors have demonstrated adequate working knowledge of regulatory requirements and excellent level of technical competence. The licensee's staffing is generally adequate, but in view of planned modifications and possible SEP upgrade requirements, may require increases.

Conclusion - Category 2

Board Recommendations - None

GPU Nuclear Corporation Comments:

The third paragraph of the evaluation states, "... the timeliness of responses has been poor ...". While there have been cases where our response has been later than requested, we believe that a large factor in this has been the volume of requests and NRC's practice of setting unrealistic response dates. Requests made for information frequently require complex studies or analyses to be performed before an adequate response can be prepared, reviewed, and approved by upper management. We will continue to respond in a timely manner and to formally request extensions where appropriate.

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

March 2, 1981

JERSEY CENTRAL POWER AND LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

REGION I

PERFORMANCE EVALUATION

9 JUL 1981

REGION I SALP BOARD ASSESSMENT CRITERIA

1. BACKGROUND

As part of the effort to develop NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance" (SALP), NRC:HQ finalized and provided to the regional offices new "Evaluation Guidance" for classification of licensee performance within SALP functional areas.

2. MEETING

The Region I SALP Board convened on June 19, 1981 for the purpose of comparing the new evaluation guidance to the assessment criteria used by the Board during the Cycle I Assessment Period. It was determined that the previous "Unsatisfactory" category was directly translatable into the new "Below Average" category. Further, it was determined that a previous rating of "Satisfactory" was convertible to a new rating of "Average." The Region I SALP Board members adopted the new "Evaluation Guidance."

3. ACTION

The Board directed DRPI to modify Cycle 1 Assessment Period records to reflect the new rating categories by:

a. Striking through the previous ratings, ensuring they remain legible;

b. Typing in the corresponding new rating title;

c. Attaching a copy of this decision to each docket's package; and,

d. Providing copies of the revised package to DRPI files, IE:HQ and the Resident Inspector.

Thomas T. Martin
Acting Director, DETI

Eldon J. Brunner
Acting Director, DRPI

George H. Smith
Director, DEPOS

Walter G. Martin
Asst. to Director

James M. Allan
Deputy Director

Boyce H. Grier
Director

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

OYSTER CREEK NUCLEAR GENERATING STATION

REGION I EVALUATION BOARD MEETING

Facility: Oyster Creek Nuclear Generating Station

Licensee: Jersey Central Power and Light Company

Unit Identification:

Docket No.	License No./Date of Issue		Unit No.
50-219	DPR-16	April 9, 1969	I

Reactor Information:

NSS: General Electric

MWT: 1930

Assessment Period: August 1, 1980 to January 31, 1981

Evaluation Board Meeting Date: March 2, 1981

Review Board Members:

J. M. Allan, Deputy Director
E. J. Brunner, Acting Director, Division of Resident and Project Inspection
R. T. Carlson, Director, Enforcement and Investigation Staff
W. G. Martin, Assistant to the Director
W. A. Paulson, Licensing Projects Manager, Operating Reactors, Branch 5, NRR
G. H. Smith, Director, Division of Emergency Preparedness and Operational Support

Other NRC Attendees:

R. R. Keimig, Chief, Projects Branch No. 2, DRPI
E. G. Greenman, Chief, Reactor Projects Section 2A, DRPI
L. E. Briggs, Reactor Inspector
J. A. Thomas, Acting Senior Resident Reactor Inspector, Oyster Creek

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE DATA

Assessment Period: August 1, 1980 to January 31, 1981

A. Number and Nature of Noncompliance Items

1. Noncompliance Category

Infractions	7
Deficiencies	1
III	1
IV	5
V	1

2. Areas of Noncompliance

	VIO/INF/DEF	III/IV/V
Plant Operations		0/0/1
Design Changes and Modifications	0/1/0	
Radiation Protection	0/2/0	
Environmental Protection	0/4/1	
Security and Safeguards	0/0/0	1/5/0

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE DATA

Assessment Period: August 1, 1980 to January 31, 1981

. Number and Nature of Licensee Event Reports

1. Type of Events

Component Failure	18
Design/Fabrication/Analysis Errors	16
Defective Procedures	0
Personnel Errors	6
External	5
Other	1
TOTAL	46

2. Causally Linked Events

   1 event in 1 group

3. Licensee Event Reports Reviewed (Report Nos.)

   80-33 to 80-63, 81-01 to 81-06, and ETS 80-05 to 80-13

C. Escalated Enforcement Actions

Civil Penalties

None. Escalated enforcement action is in progress based on physical security inspection 80-36. Escalated enforcement action was being recommended to HQ based on third party inspection (State of Nevada), December 30, 1980 (civil penalties were not issued).

Orders

Order of August 29, 1980, requiring the licensee to submit requested documentation on environmental qualification of electrical equipment.

Order of September 19, 1980, modifying the previous order issued on August 29, 1980.

Confirmatory Order of October 2, 1980, to confirm licensee commitment to install continuous level monitoring system as required by IEB 80-17.

Order of January 9, 1981, modifying license DPR-16 to require installation of auto scram on low CRD air header pressure. Installation required by April 9, 1981. Licensee has applied for a 9-day extension.

Order of January 13, 1981, requiring the licensee to reassess containment design and install necessary modifications by December 31, 1981.

Immediate Action Letters

IAL 80-36 of October 2, 1980, to confirm licensee commitments relative to operation of the temporary waste demineralizer system.

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE DATA

Assessment Period: August 1, 1980 to January 31, 1981

D. Management Conferences Held During Past Six Months

Management meeting at the Region I Office on January 14, 1981 to discuss NRC concerns related to Physical Security Program inspection findings (Inspection No. 50-219/80-36, December 15-19, 1980) and the licensee's proposed corrective actions.

Management meeting at the Oyster Creek Nuclear Generating Station, Forked River, New Jersey, on September 25, 1980 to address NRC:RI concerns identified in the Regional SALP Evaluation Board meeting of September 22, 1980.

E. Licensee Activities

Full power operation during this period has been restricted because of the New Radwaste facilities' inability to process liquid radioactive waste at design capacity.

Plant was shutdown on the following dates for maintenance:

1. July 31 to August 4, 1980 to repair a nitrogen system leak in the drywell.
2. September 19-22, 1980 due to excessive unidentified leakage in the drywell. Leakage was from a capped feedwater check valve test connection.
3. November 22-29, 1980 to repair a feedwater heater tube leak.
4. A six week shutdown is scheduled to begin in April 1981 to make plant modifications required to satisfy NUREG 0737.

F. Inspection Activities

Routine inspection (546 hours) by resident and region-based inspectors
Reactive inspection (139 hours) by resident inspectors

G. Investigation Activities

None.

OYSTER CREEK NUCLEAR GENERATING STATION

LICENSEE PERFORMANCE

Functional Area	Above Average	Average	Below Average
1. Plant Operations		X	
2. Refueling Operations		X	
3. Maintenance		X	
4. Surveillance		X	
5. Licensed Operator Training		X	
6. QA/QC		X	
7. Reporting		X	
8. Committee Activities		X	
9. Procurement		X	
10. Fire Protection		X	
11. ISI/IST		X	
12. Design Changes and Modifications		X	
13. Radiation Protection		X	
14. Environmental Protection			X
15. Emergency Preparedness		X	
16. Radioactive Waste Management		X	
17. Transportation		X	
18. Security and Safeguards			X
19. Management Controls		X	

Boyce H. Grier

Regional Director

Date 3/2/81

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

March 2, 1981
(Evaluation Date)

Jersey Central Power and Light Company
(Name of Licensee)

Oyster Creek Nuclear Generating Station
(Title of Facility)

REGION I

PERFORMANCE ANALYSIS

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

1. PLANT OPERATIONS Assessment Period 8/1/80 to 1/31/81

Analysis

This area is under continuous review by the RRI. During this evaluation period approximately 100 inspector hours were spent in this area. One item of noncompliance was identified in the operations area for failure to follow annunciator alarm procedures, further addressed under (18) Management Controls.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

2. REFUELING OPERATIONS Assessment Period 8/1/80 to 1/31/81

Analysis

Inspection by resident and region based inspectors in the Post-refueling area (36 inspector hours) identified no items of noncompliance. Last refueling outage was completed in July 1980. There were two items of noncompliance as a result of five inspections in this area during the outage. The next refueling outage is scheduled for October 1981.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

3. MAINTENANCE Assessment Period 8/1/80 to 1/31/81

Analysis

Inspection by the resident inspector has not resulted in any items of noncompliance. Maintenance activities were inspected once (3 inspector hours) during this assessment period.

Conclusion

Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

4. SURVEILLANCE Assessment Period 8/1/80 to 1/31/81

Analysis

Inspection by the resident inspector (4 inspector hours) has not resulted in any items of noncompliance.

Conclusion

Average Performance.

PERFORMANCE ANALYSIS

5. LICENSED OPERATOR TRAINING   Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection in this area during the assessment period. A training inspection is scheduled to be conducted during the month of April 1981. This area was previously rated unsatisfactory based on HP Technician training (see No. 13 Radiation Protection).

Conclusion

Average performance.

PERFORMANCE ANALYSIS

6. QA/QC Assessment Period 8/1/80 to 1/31/81

Analysis

No inspections have been performed in this area during assessment period. This area was rated satisfactory during the previous assessment period based on inspections conducted by both PAB and region based inspectors.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

7. REPORTING Assessment Period 8/1/80 to 1/31/81

Analysis

As a result of continuing LER, Bulletin and periodic report reviews, this area is under continuous evaluation by the resident inspector. Approximately 106 inspector hours were spent during this period in this area. No items of noncompliance were identified.

Conclusion

Average performance.

PERFORMANCE ANALYSIS

8. COMMITTEE ACTIVITIES

Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection of this area was conducted during this period. No items of noncompliance were identified. Increased inspection effort was previously recommended in this area due to one item of noncompliance identified during the Health Physics Appraisal inspection (80-17, not yet issued) in the Area of H.P. Audits. This inspection finding will be reviewed for licensee corrective action subsequent to report 80-17 issuance.

Conclusion

Average performance.

PERFORMANCE ANALYSIS

9. PROCUREMENT Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection has been performed in this area during this assessment period. During the last evaluation period this area was inspected by PAB; no items of noncompliance were identified.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

10. FIRE PROTECTION Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection was conducted in this area during the evaluation period; however, routine inspection during plant tours (approximately 15 inspector hours) by the resident inspector has not resulted in any items of noncompliance in this area.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

11 ISI/IST   Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspections of this area during assessment period. During the previous evaluation period one item of noncompliance (management controls) was identified for failure to implement the IST program for pumps and valves as required by ASME, Section XI. The PAB inspection (79-18) identified no items of noncompliance in the In-Service Inspection (ISI) area but indicated a weakness in the coordination of the licensee's program. Licensee action was in progress at that time to accumulate all available data to establish the remaining ISI to be completed to fulfill the requirements of their first ten (10) year ISI program. A preliminary Region I data review subsequent to the PAB inspection, indicated that requirements were being met. Inspection of the licensee's ISI/IST Program is scheduled to be conducted during the next 6-month evaluation period.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

12. DESIGN CHANGES AND MODIFICATIONS Assessment Period 8/1/80 to 1/31/81

Analysis

No specific inspection has been performed in this area during assessment period; however, the resident inspectors have identified numerous LER's relating to repetetive safety related instrument setpoint drift problems. An inspection was conducted (50-219/80-06) on March 9-10, 1981 (outside evaluation period) to determine if an adequate engineering evaluation had been performed before the subject instruments had been installed during the last refueling outage. Results of that inspection indicate that switches of higher quality and design accuracy were installed but have not performed within design specifications. A program has been initiated by the licensee to identify and correct setpoint drift problems.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

1 RADIATION PROTECTION Assessment Period 8/1/80 to 1/31/81

Analysis

During this period of review two inspections were conducted by the Radiation Support Section and no items of noncompliance were identified. The bulk of these inspections took place prior to the period under review. Both inspections concluded August 1, 1980.

Increased inspection effort (approximately 25 routine inspector hours and approximately 75 hours reactive) has been directed by the resident inspectors during the period under review to assure the licensee's adherence to station radiation protection procedures. Two items of noncompliance were identified, relating to failure to follow contamination control procedures. The licensee's radiation protection staff has been supplemented by contractor technicians. Significant organizational changes have been implemented with the formation of the G.P.U. Nuclear Group.

There has been a significant increase in the involvement of the Radiological Engineering Group in ALARA implementation. To further implement the September 1980 recommendations of the Region I SALP Board for increased inspection effort, an inspection was scheduled for the week of March 2, 1981 by Radiation Support to further assess the effectiveness of the Radiation Protection Organizational changes. Results of this inspection (subsequent to the assessment period) indicated that the licensee's performance is acceptable in this area. One item of noncompliance relating to control of procedure changes was identified. The licensee has implemented additional HP technician training but the training program needs to be fully formalized and retraining requirements established. No other weaknesses in the Radiation Protection area were identified.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

14. ENVIRONMENTAL PROTECTION Assessment Period 8/1/80 to 1/31/81

Analysis

One environmental inspection (50 inspector hours) was conducted September 22-26, October 15, 1980. This inspection disclosed 5 items of noncompliance, (failure to follow QA procedure; failure to have procedures; failure to conform to Reg Guide 1.23; failure to perform required calibrations and channel checks of thermal monitoring system; failure to have all required thermal monitoring instrumentation and inadequate air sampler design pursuant to ANSI N13.1-1969). Response to report (issued 1/30/81) has not yet been received.

Conclusion

Below average performance in non-radiological environmental protection area. Recommend increased inspection frequency; however, due to recommended inspection priority, letter Thornburg to Grier dated 2/9/81, increased inspection will not be conducted.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

15. EMERGENCY PREPAREDNESS   Assessment Period 8/1/80 to 1/31/81

Analysis

The last review of the OC Emergency planning program took place on May 12-15, 1980 during the HP appraisal. As a result, an IAL was issued relating to deficient procedures, training and definition of the emergency organization. The licensee's immediate actions were adequate to resolve concerns itemized in the IAL. A number of additional findings, however, remained for resolution in development of the NUREG 0654 plan and implementation.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

... RADIOACTIVE WASTE MANAGEMENT Assessment Period 8/1/80 to 1/31/81

Analysis

There were no inspections directed exclusively to Radioactive Waste Management during the evaluation period. However, during an inspection which concluded August 1, 1980 radioactive waste related records, shipping documents and procedure changes, including changes to verify that packages were surveyed for free standing liquids, were reviewed. No noncompliance was noted.

The licensee has implemented organizational changes to improve the management controls in this area. A supervisor for radioactive waste operations and a supervisor for radioactive waste shipping have been permanently assigned. Additionally, personnel specifically trained in the Radwaste System Operations are utilized rather than having equipment operators performing these functions as a collateral duty.

There were 15 total inspections conducted at burial sites during 1980. One item of noncompliance was identified during an inspection performed by the State of Nevada in December 1980 which identified an improper shipment, further discussed under Item 17, "Transportation."

The operation of the Radioactive Waste Treatment System has been impaired by extensive contamination of the process building due to design inadequacies. The licensee has initiated a design review of the radioactive waste system and is presently modifying the building's ventilation system to decrease the spread of contamination and enhance operations.

In accordance with the recommendations of the Region I SALP Board which met in September 1980, an inspection was scheduled for the week of March 2, 1981, to access the status of the Radioactive Waste Operations. Results of this inspection (subsequent to the assessment period) indicated that the licensee's performance is acceptable in this area. No items of noncompliance were identified.

The last independent measurements inspection was conducted on May 13-15, 1980 with the Region I mobile lab. No items of noncompliance were identified. The licensee's measurements were in agreement with the NRC's.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

17. TRANSPORTATION

Assessment Period: 8/1/80 to 1/31/81

Analysis

During this evaluation period radioactive waste shipments to Beatty, Nevada have been inspected 3 times with 11 total inspections conducted at Beatty since January 1980. One noncompliance was identified during a 3rd party inspection on December 30, 1980 when one drum of waste leaked liquid through 4 pin-holes in the bottom of the drum. The licensee's permit for disposal at the Beatty burial site was revoked. The permit was subsequently restored after a meeting between site management and the State of Nevada. Escalated enforcement action is being recommended to HQ in this case as a test of the 3rd party inspection effort. The licensee was also inspected 5 times during 1980 by Region II (Barnwell) with no items of noncompliance identified. On February 19, 1981 (outside evaluation period) a licensee shipment of irradiated fuel was surveyed by the resident inspector and no items of noncompliance were identified. An inspection of this area was scheduled for the week of March 2, 1981. Results of this inspection (subsequent to the assessment period) indicated acceptable performance in this area. Additional steps including procedure changes and the implementation of a more rigorous quality assurance program had been taken by the licensee.

Conclusion

Average performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

SECURITY AND SAFEGUARDS   Assessment Period 8/1/80 to 1/31/81

Analysis

Routine resident inspection (approximately 20 hours) and one region based inspection (80-36; 64 inspector hours) on December 15-19, 1980 resulted in six (6) violations. One violation (failure to maintain the integrity of a vital area) was a Severity Level III violation. Security Management at Oyster Creek was aware of the degraded vital barrier but took no compensatory action until the violation was identified during the inspection. Other violations identified were:

(a) failure to use an approved ID badge.
(b) failure to change security combination and failure to audit security keys.
(c) failure to assure the explosive detectors met the required performance characteristics.
(d) failure to meet the .2 foot candle lighting requirement.
(e) failure to retain security records for the required period.

The Severity Level III violation was of additional concern due to the decision by the Security Supervisor not to take compensatory measures for the degraded barrier. Civil penalty was recommended but was not issued.

Conclusion

Below Average Performance.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

9. MANAGEMENT CONTROLS

Assessment Period 8/1/80 to 1/31/81

Analysis

Approximately 20 inspector-hours are directly attributed to this area, and findings in other areas are evaluated from a management perspective. During this evaluation period there has been improvement in this area. There have been no items of noncompliance specifically in the area of management controls. The licensee's organizational changes have placed more direct senior level management attention on site and are indicative of a commitment to further improve this area. However, during this evaluation period, there have been two items of noncompliance for failure to follow health physics procedures, one item of noncompliance for failure to follow operating procedures, and six items of noncompliance in the security and safeguards area. In addition, the slow progress being made in the licensee's effort to decontaminate the reactor building and to remove the large quantity of contaminated tools and equipment remaining from the 1980 refueling, and the low level of management attention given to the large number of LER's resulting from instrument repeatability (details Section 12) are indicative of apparent weaknesses in the area of management control.

Conclusion

Average performance.

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

March 2, 1981
Evaluation Date

Jersey Central Power and Light Company

Oyster Creek Nuclear Generating Station

REGION I

SUPPLEMENTAL INFORMATION

OYSTER CREEK NUCLEAR 'RATING STATION

ENFORCEMENT HISTORY FROM AUGUST 1, 1980 to JANUARY 31, 1981

Inspection Number	Severity	Functional Area	Subject
80-28	INF	HP	Protective clothing being removed outside contamination controlled area.
	INF	HP	Four individuals working in contamination controlled area without required Protective clothing.
	INF	Design	Temporary waste Water Drain installed without adequate process controls resulting in a spill of Radioactive liquid.
80-30	INF	Environmental	Failure of licensee to respond to internal audit finding.
	INF	Environmental	Inadequate procedures for action to be taken for: failure of environmental temperature monitors; dilution pump operation; and recorder calibration.
	INF	Environmental	Control room environmental recorders not calibrated on a regular 6 month basis.
	INF	Environmental	Failure to channel check environmental thermal monitoring equipment
	DEF	Environmental	Only 1 of 2 channels of 3 temperature monitors met ETS accuracy requirements.
* 80-36	Level III	Security	Vital barrier (floor gratings) into 4160 Volt room not secured.
	Level IV	Security	Non picture badges being used for unescorted access.
	Level IV	Security	Annual audit of protected area keys and annual security safe combination change not performed.
	Level IV	Security	Performance test not conducted on explosives detector.

Inspection Number	Severity	Functional Area	Subject
(cont'd) * 80-36	Level IV	Security	Lighting in two protected areas did not meet the requirements of the approved security plan.
	Level IV	Security	Temporary badge log not maintained for 1 year.
* 81-01	Level V	Operations	Failure to follow annunciator procedure.

* Report Not Issued

Oyster Creek

ENFORCEMENT SUMMARY From August 1, 1980 To January 31, 1981

50-219 — Docket No.

I — Unit No.

Functional Area of Noncompliance	VIO	INF	DEF	III	IV	V	VI
1. Plant Operations						1	
2. Refueling Operations							
3. Maintenance							
4. Surveillance							
5. Licensed Operator Training							
6. QA/QC							
7. Reporting							
8. Committee Activities							
9. Procurement							
10. Fire Protection							
11. ISI/IST							
12. Design Changes and Modification		1					
13. Radiation Protection		2					
14. Environmental Protection		4	1				
15. Emergency Preparedness							
16. Radioactive Waste Management							
17. Transportation							
18. Security and Safeguards				1	5		
19. Management Controls							
Totals		7	1	1	5	1	

SEVERITY LEVEL: VIO/INF/DEF, III, IV, V, VI

LICENSEE EVENT REP SYNOPSIS
AUGUST 1, 1980 TO J. RY 31, 1981

LER NUMBER	TYPE	CAUSE CODE	DESCRIPTION
80-33	30 Day	E	Torus oxygen concentration exceeded 5 percent 24 hours after placing mode switch in "Run".
80-34	30 Day	C	Overload trip on SGTS exhaust fan 1-8 during routine surveillance test.
80-35	30 Day	B	High drywell pressure switches IP-15A and IP-15D tripped at a value greater than specified.
80-36	30 Day	E	Stack release rates not continuously monitored due to failure of stack gas sample system.
80-37	30 Day	A	Standby Gas Treatment System operated in degraded mode.
80-38	30 Day	B	Triple Low water level sensor RE-18B exceeded its required set-point.
80-39	30 Day	B	Low Pressure Main Steam Line sensor RE-23B and RE-23D tripped at a value less than specified.
80-40	30 Day	E	Hydraulic snubber number S1/6 failed to lock up in compression and tension during functional testing.
80-41	30 Day	E	Core Spray System II removed from service to repair a leaking vent line.
80-42	30 Day	B	High drywell pressure switches IP-15A, IP-15B, and IP-15C tripped at values greater than specified.
80-43	30 Day	B	Reactor triple low water level sensor RE-18D exceeded its required setpoint.
80-44	30 Day	A	Core Spray System I removed from service when booster pump motors became wet following inadvertent actuation of the fire suppression system.
80-45	30 Day	E	Core Spray System I removed from service to repair a leaking vent line.

LER NUM. .	TYPE	CAUSE CODE	DESCRIPTION
80-46	30 Day	A	Pressure drop across the upstream HEPA of SGTS II exceeded specified limits.
80-47	30 Day	B	High drywell pressure switches RV-46A, RV-46B, RV-46C, and RV-46D setpoints exceeded specified values.
80-48	30 Day	E	Hydraulic snubber number 23-7 failed to lock up in tension during functional testing.
80-49	24 Hour	E	Isolation Condenser vent valves V-14-1 and V-14-19 failed to close when actuated from the control Room.
80-50	30 Day	B	High drywell pressure switches IP-15A, IP-15B, IP-15C, and IP-15D tripped at values greater than specified.
80-51	30 Day	A	Daily surveillance for APLHGR, LHGR, and MCPR was not performed.
80-52	30 Day	B	Reactor triple low water level sensors RE-18A and RE-18D tripped at values higher than specified.
80-53	30 Day (10*)	E	Control rod drive hydraulic pumps removed from service one at a time to repair leaks on pump seal/bearing water piping.
80-54	30 Day (11*)	E	Core Spray System I removed from service to inspect pump motors wetted by CRD hydraulic leaks.
80-55	30 Day	B	High drywell pressure switches RV-46B, RV-46C, and RV-46D tripped at values greater than specified.
80-56	30 Day	B	Main steam line high flow switches RE-22C and RE-22G tripped at values greater than desired.
80-57	30 Day	B	High drywell pressure switches IP-15A, IP-15B, IP-15C, and IP-15D tripped at values greater than specified.
80-58	30 Day	E	Hydraulic snubbers 19/6 and 19/7 failed to lock up during functional testing.

LER NU[illegible]	TYPE	CAUSE CODE	DESCRI[illegible]
80-59	30 Day	A	Monthly surveillance for the main station battery and diesel generator starting batteries was not performed.
80-60	30 Day	B	Isolation Condenser pipe break sensors IB11A1, IB11A2, IB11B1, and IB11B2 tripped at values greater than specified.
80-61	30 Day	E	Hydraulic snubbers 19/11, 19/12, and 19/13 failed to lock up during functional testing.
80-62	30 Day	E	Control rod drive hydraulic pump NC-08A failed in service.
80-63	30 Day	B	Reactor triple low water level sensor RE-18A tripped at a value greater than specified.
81-01	30 Day	B	High drywell pressure switch IP-15C tripped at a value greater than specified.
81-02	30 Day	E	Stack gas activity was not continuously monitored due to trip of sample pump.
81-03	30 Day	E	Fire hydrant number 2 inoperable due to a frozen barrel.
81-04	24 Hour	B	Load on emergency generators during design basis accident could exceed full load rating.
81-05	30 Day	X	Emergency service water pump 52B failed to demonstrate operability.
81-06	30 Day	B	Reactor triple low water level sensor tripped at a value greater than specified.
80-05E	30 Day	E	Dilution pump tripped and was not restarted within 15 minutes.
80-06E	30 Day	C	Condenser discharge temperature exceeded 106^{o}F.
80-07E	30 Day	E	Dilution pump tripped and was not restarted within 15 minutes.
80-08E	30 Day	E	Dilution pump was not placed in service when bridge temperature exceeded 87^{o}F.
80-09E	30 Day	C	Unusually high blue crab mortality.

LER NUMBER	TYPE	CAUSE CODE	DESCRIPTION
80-10E	30 Day	E	Less than two dilution pumps operating when intake temperature was below 60°F.
80-11E	30 Day	C	Fish kill in lagoons along Oyster Creek.
80-12E	30 Day	C	Fish kill in Oyster Creek during a controlled plant shutdown.
80-13E	30 Day	A	Less than two dilution pumps operating when intake temperature was below 60°F.

NOTES:

CAUSE CODES:
- A - Personnel Error
- B - Design/Manufacturing, Construction/Installation
- C - External Cause
- D - Defective Procedures
- E - Component Failure
- X - Other

*Causally linked event element
(Xo) Initial group element
(Xy) Subsequent group element(s)

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

September 22, 1980

JERSEY CENTRAL POWER AND LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

REGION I

PERFORMANCE EVALUATION

9 JUL 1981

REGION I SALP BOARD ASSESSMENT CRITERIA

1. BACKGROUND

As part of the effort to develop NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance" (SALP), NRC:HQ finalized and provided to the regional offices new "Evaluation Guidance" for classification of licensee performance within SALP functional areas.

2. MEETING

The Region I SALP Board convened on June 19, 1981 for the purpose of comparing the new evaluation guidance to the assessment criteria used by the Board during the Cycle I Assessment Period. It was determined that the previous "Unsatisfactory" category was directly translatable into the new "Below Average" category. Further, it was determined that a previous rating of "Satisfactory" was convertible to a new rating of "Average." The Region I SALP Board members adopted the new "Evaluation Guidance."

3. ACTION

The Board directed DRPI to modify Cycle 1 Assessment Period records to reflect the new rating categories by:

a. Striking through the previous ratings, ensuring they remain legible;

b. Typing in the corresponding new rating title;

c. Attaching a copy of this decision to each docket's package; and,

d. Providing copies of the revised package to DRPI files, IE:HQ and the Resident Inspector.

Thomas T. Martin
Acting Director, DETI

Eldon J. Brunner
Acting Director, DRPI

George H. Smith
Director, DEPOS

Walter G. Martin
Asst. to Director

James M. Allan
Deputy Director

Boyce H. Grier
Director

OYSTER CREEK NUCLEAR GENERATING STATION
PERFORMANCE EVALUATION AND ACTION PLAN

September 22, 1980

Region I

Licensee Performance Evaluation (Operations)

Facility: Oyster Creek Nuclear Generating Station

Licensee: Jersey Central Power and Light Company

Unit Identification:

Docket No.	License No./Date of Issuance	Unit No.
50-219	DPR-16 April 9, 1969	I

Reactor Information:

NSSS General Electric

MWt 1930

Appraisal Period: August 1, 1979 to July 31, 1980

Appraisal Completion Date: September 22, 1980

Review Board Members:

B. H. Grier, Director, Region I
J. M. Allan, Deputy Director, Region I
E. J. Brunner, Chief, Reactor Operations and Nuclear Support Branch, Region I
G. H. Smith, Chief, Fuel Facilities and Materials Safety Branch, Region I
R. T. Carlson, Chief, Reactor Construction and Engineering Support Branch
J. W. Devlin, Acting Chief, Safeguards Branch

Other Attendees:

R. R. Keimig, Chief, Reactor Projects Section No. 1, Region I
W. Paulson, Oyster Creek Licensing Project Manager, NRR
L. E. Briggs, Oyster Creek, Senior Resident Inspector
J. A. Thomas, Oyster Creek, Resident Inspector
R. Nimitz, Radiation Specialist, FF&MS, Region I
D. Neely, Radiation Specialist, FF&MS, Region I

A. Number and Nature of Noncompliance Items

Noncompliance Category:

Violations	1
Infractions	32
Deficiencies	7

Areas of Noncompliance:

	VIO/INF/DEF
Plant Operations	0/2/0
Refueling Operations	0/2/0
Radiation Protection	1/12/1
Radwaste Operations	0/2/1
Radwaste Shipment	0/1/0
Security and Safeguards	0/0/1
Surveillance and Post Refuel Testing	0/2/1
Design Changes and Modifications	0/3/0
Training	0/1/0
Management Controls	0/2/1
Fire Protection	0/2/0
QA/QC	0/1/1
Review and Audit	0/2/0
Reporting	0/0/1

B. Number and Nature of Licensee Event Reports

Cause of Event:

Component Failure	26
Design/Fabrication/Analysis Error	8
Defective Procedures	3
Personnel Error	14
External	0
Other	11
Total	62

Causally-Linked Events: 9 Events in 4 Groups

Licensee Event Reports Reviewed (Report Nos.)

79-26 to 79-44, 80-01 to 34, ETS 79-04 to 79-08, and ETS 80-01 to 80-04

C. Escalated Enforcement Actions

Civil Penalties

A civil penalty ($21,000) was issued on July 8, 1980 based on the results of health physics inspection 80-11 and the total number (22) of health physics items of noncompliance issued since the January 1979 civil penalty.

Orders

Confirmatory Order of April 4, 1980, to confirm licensee commitments relative to IEB 79-27, "Loss of Nonclass 1-E Instrumentation and Control Power Bus During Operation."

Confirmatory Order of January 2, 1980 to confirm licensee commitments to implement all "Category A" lessons learned requirements (excluding 2.1.7.a) by January 1, 1980.

Order of July 8, 1980, which modified license DPR-16 to require health physics technician qualifications to meet or exceed the requirements of ANSI N18.1-1971.

Immediate Action Letters

IAL 79-21 of December 26, 1979, to confirm licensee commitments relative to gaseous effluent releases from the New Radwaste Facility.

IAL 80-13 of May 16, 1980, to confirm licensee commitments relative to the emergency readiness posture of the Oyster Creek Nuclear Generating Station.

Other Correspondence

Licensee letter of April 2, 1980 stating the licensee's intent to take immediate corrective action in the Radiation Protection Department as a result of the Health Physics Appraisal Inspection.

D. Management Conferences Held During Past Twelve Months

Management meeting, at the licensee's request, at the Region I office on August 30, 1979, to discuss health physics program status and commitments resulting from the January 1979 civil penalty.

Management meeting at the Region I office on April 29, 1980, to discuss NRC concerns and licensee corrective actions relative to the NRC's Performance Appraisal Branch inspection findings and radiation protection concerns resulting from recent Region I inspection.

Management meeting, at the licensee's request, at the Region I office on June 13, 1980, to discuss program improvements and additional staffing of the Health Physics Department as a result of the Health Physics Appraisal inspection findings.

OYSTER CREEK NUCLEAR GENERATING STATION

INSPECTION TIME AND/OR SCOPE

Change from Prescribed Inspection Prog

FUNCTIONAL AREA	Increase	No Change	Decrease
Plant Operations		X	
Refueling Operations		X	
Radiation Protection	X		
Radwaste Management	X		
Transportation	X		
Maintenance		X	
Security and Safeguards		X	
Surveillance and Post Refuel Testing	ISI & IST PROGRAM X		
Design Changes and Modifications		X	
Emergency Planning		X	
Environmental		X	
Training	X HP		
Management Controls	X		
Fire Protection		X	
QA/QC		X	
Committee Activities/Audits	HP Audits X		
Reporting		X	
Procurement		X	

Boyce H. Grier

Regional Director

9/22/80

Date

3. Radiation Protection

Increased inspection effort is warranted in this area due to the high number of items of noncompliance. Although improvements have reportedly occurred during and since the end of the evaluation period (July 31, 1980), in depth inspection is necessary to determine the effectiveness of the licensee's corrective actions.

4. Radwaste Management

Increased inspection effort is warranted in this area due to the number of items of noncompliance and the licensee's history of problems in this area. Reported improvements have taken place during and after this evaluation period. In depth inspection is necessary to determine the effectiveness of the licensee's corrective actions.

5. Transportation

Increased inspection effort is recommended in this area due to licensee history of problems relating to management and shipment of radioactive waste. Improvements have reportedly taken place during and subsequent to this evaluation period; however, detailed inspection of the licensee's program is necessary to determine the effectiveness of program improvements.

8. Surveillance and Post Refuel Testing

Increased inspection effort is recommended in the areas of Inservice Inspection (ISI) and Inservice Testing (IST) of Pumps and Valves due to the licensee's failure to implement the IST program as required and the detailed inspection necessary to verify satisfactory completion of the licensee's first ten (10) year ISI program.

12. Training

Increased inspection is warranted in the area of health physics technician training due to the item of noncompliance identified by the PAB inspection and recurrent problems relating to use of inadequately trained health physics technicians.

13. Management Controls

Increased inspection frequency of the licensee's management controls in the Health Physics and Radwaste areas is warranted. This is due to the large number of open inspection items and recurrent slippage of commitment dates in these areas. In addition, the effectiveness of the new management/staff organization must be closely monitored.

5. Committee Activities and Audits

Increased inspection effort is warranted in the area of health physics audits due to a recurrent inspection finding involving failure to complete an annual audit of the entire facility staff training and qualifications, specifically, the health physics program was not addressed during this audit.

OYSTER CREEK NUCLEAR GENERATING STATION

PERFORMANCE ANALYSIS

1. PLANT OPERATIONS

Analysis

This area is under continuous review by the RRI's. During the evaluation period there have been two items of noncompliance in the operations area involving procedural inadequacies and inadequate mechanism for the issuance of management instructions. There have been nine LER's in the operations area, four involving component failure, and five involving personnel error. There are presently eight unresolved items in the operations area. The licensee has responded in a positive manner to expeditiously correct operational inadequacies identified by the inspectors.

Conclusion

Average
~~Satisfactory~~ Performance

Board Comments

Board is in agreement with the analysis and conclusion.

2. REFUELING OPERATIONS

Analysis

The plant underwent a refueling outage during the evaluation period. Based on the results of five inspections there were two items of noncompliance involving procedural inadequacies or lack of adherence to procedures, and three unresolved items. There were two refueling activity-related [illegible] during the evaluation period. Both involved personnel error.

Of particular note in this area was an incident involving failure to remove control rod interlock bypass jumpers prior to completion of control cell fuel reload. The incident resulted from a breakdown of administrative controls and procedural inadequacies. The incident received attention from the licensee's General Office Review Board, the Plant Operations Review Committee, and the Operations Experience Assessment Committee. The licensee's proposed corrective actions on this matter were satisfactory.

Conclusion

Average
~~Satisfactory~~ Performance

Board Comments

Board is in agreement with the analysis and conclusion.

3. <u>RADIATION PROTECTION</u>

<u>Analysis</u>

There have been six inspections, including PAB and the Health Physics Appraisal, during this evaluation period which resulted in fourteen items of noncompliance and a civil penalty. Major areas of concern were the use of personnel not meeting ANSI N18.1 - 1971 requirements and the use of procedures inconsistent with Technical Specification requirements. In addition to the civil penalty issued as a result of inspection 80-11, an order modifying the licensee's license was issued that requires all health physics (HP) technicians to meet or exceed the requirements of ANSI N18.1 - 1971. Increased inspection effort, due to the licensee's continuing HP program problems, was initiated by Region I for an eight week period (May 28 to August 1, 1980) by assigning a resident Radiation Specialist at the site. The licensee has taken action to improve the radiation protection program including retraining of HP technicians and foremen, supplementing the site HP staff, and actively seeking additional personnel.

<u>Conclusion</u>

Performance Below Average ~~Unsatisfactory~~.

<u>BOARD COMMENTS</u>

Board recommends increased inspection effort by Region I to confirm that corrective actions already initiated are effective.

4. RADWASTE OPERATIONS

Analysis

There have been two inspections during the evaluation period, one by the FF&MS Branch and one by the PAB. Three items of noncompliance were identified by the FF&MS Branch: 1) Failure to survey to determine the amount of free standing liquid in a shipment of dewatered resin, 2) Failure to submit a Technical Specification change request for new radwaste effluent releases, and 3) Failure to maintain radwaste shipping records required by 10 CFR 71.62. The Health Physics Appraisal Team also noted that radiation protection personnel had little knowledge of the new radwaste facility which was placed into operation in late 1978. In addition, the Performance Appraisal Branch identified one item of noncompliance in this area which involved failure to properly survey effluents released by new radwaste ventilation.

The last confirmatory measurements inspection was conducted in May 1980. No items of noncompliance were identified.

Conclusion

Performance Below Average ~~Unsatisfactory~~ based on present information. However in the second half of the evaluation period the licensee commenced a training program in this area. In addition, the licensee has begun the implementation of organizational change which is intended to improve the management controls in this area.

BOARD COMMENTS

Board recommends increased inspection effort in this area to confirm corrective actions already initiated are effective.

5. RADWASTE SHIPMENT

Analysis

In two inspections in the area of radwaste shipments, one item of noncompliance was identified. It involved delivery of licensed materials in excess of Type A quantity to a carrier for transport without a general or specific license. In particular, the licensee did not have copies of the vendors' cask drawing referred to in the certificate of compliance. This incident occurred in December 1979. Since that time, the licensee has appointed a radwaste shipping supervisor and conducted additional training in this area. The licensee has committed to prepare procedures for each type of shipping cask handled to preclude recurrences. A recent licensee shipment inspected by Region II (80-15) at the Barnwell, South Carolina disposal facility identified no items of noncompliance.

Conclusion

Average
~~Satisfactory~~ performance based on present information.

BOARD COMMENTS

Board recommends inspection of licensee's radwaste shipment operations within the next six month evaluation period.

6. MAINTENANCE

Analysis

Two inspections have been conducted in the maintenance area during the evaluation period. No items of noncompliance were identified. There were four maintenance related LER's, two involving personnel error, and one involving improper setting of safety relief valves on the core spray system. The licensee has developed a viable maintenance force and has committed to strengthen it even further by developing a maintenance crew devoted solely to the performance of preventive maintenance.

Conclusion

Average
~~Satisfactory~~ Performance

Board Comments

Board is in agreement with the analysis and conclusion.

7. SECURITY AND SAFEGUARDS

Analysis

There have been two inspections conducted by the Safeguards Branch Security Section and one inspection by the Performance Appraisal Branch (PAB) during the evaluation period. No items of noncompliance were identified. During inspection 80-08, the inspector reviewed allegations by a former guard at the plant that were published in the Asbury Park Press. The allegations could not be substantiated.

The licensee has a strong security management program with apparent corporate management backing providing for responsiveness to security occurrences.

Conclusion

Average
~~Satisfactory~~ Performance

BOARD COMMENTS

Board is in agreement with the analysis and conclusion.

8. SURVEILLANCE AND POST REFUEL TESTING

Analysis

Three items of noncompliance have been identified by six inspections in the area of surveillance testing. Two involved inadequate actions following unsatisfactory surveillance test results. There were 31 LER's concerning surveillance testing, three of which involved failure to perform required surveillances. One of these, failure to perform methyl iodide removal efficiency on charcoal adsorbers, resulted in the third item of noncompliance in the surveillance area. This was caused by failure to incorporate the requirements of a Technical Specification amendment into the master surveillance schedule. The licensee has committed to conduct a review of all past Technical Specification amendments to verify that revised surveillance requirements are incorporated into the master surveillance schedule. This review has not yet been completed.

Additionally, one item of noncompliance (management controls) was identified for failure to implement the IST program for pumps and valves as required by ASME, Section XI. The PAB inspection (79-18) identified no items of noncompliance in the In-Service Inspection (ISI) area but indicated a weakness in the coordination of the licensee's program. Licensee action was in progress at that time to accumulate all available data to establish the remaining ISI to be completed to fulfill the requirements of their first ten (10) year ISI program. A preliminary Region I Data review subsequent to the PAB inspection, indicated that requirements were being met.

One additional item presently being evaluated by NRC:HQ is the licensee's failure to perform SBGTS HEPA filter flow distribution. This surveillance was not conducted due to HEPA filter design which has no provision for flow distribution measurements. A Technical Specification change request must be submitted by the licensee to correct this item.

Conclusion

Average
Satisfactory Performance.

BOARD COMMENTS

Board recommends inspection of licensee's ISI and IST Programs within the next six month evaluation period.

9. DESIGN CHANGES AND MODIFICATIONS

Analysis

This area has been inspected by the RO&NS Branch Nuclear Support Section, the RC&ES Branch Engineering Support Section and the PAB during this evaluation period. Three items of noncompliance were identified by PAB concerning fire protection system installation.

Conclusion

Average
~~Satisfactory~~ Performance

BOARD COMMENTS

Board is in agreement with the analysis and conclusion.

10. EMERGENCY PLANNING

Analysis

Two inspections were conducted during this evaluation period, one by the PAB and one during the Health Physics Appraisal. No items of noncompliance were identified; however, as a result of the Health Physics Appraisal an Immediate Action Letter was issued to require the licensee to upgrade the licensee's emergency plan to comply with NUREG 0654 requirements. This item was subsequently reviewed and closed by Region I.

Conclusion

Average
~~Satisfactory~~ Performance

BOARD COMMENTS

Board is in agreement with the analysis and conclusion.

11. ENVIRONMENTAL PROTECTION

Analysis

One inspection has been conducted during this evaluation period by PAB. No items of noncompliance were identified.

Conclusion

Average
~~Satisfactory~~ Performance with available information.

BOARD COMMENTS

Board is in agreement with the analysis and conclusion.

12. TRAINING

Analysis

Two training inspections have been conducted (PAB and Health Physics Appraisal) during this evaluation period. One item of noncompliance was identified concerning the establishment and implementation of a non licensed personnel training program. The licensee committed to major training program revisions, including the appointment of a Manager of Training (T.S. change request submitted on May 2, 1980). Training for health physics technicians was conducted during 1979 (140 hours) as a result of the January, 1979 civil penalty. A revised training program was begun during July, 1980. Training of mechanical maintenance personnel was started prior to the refueling outage but temporarily suspended due to the refueling work load.

Conclusion

~~Satisfactory~~ Average Performance with the exception of Health Physics Technician training

BOARD COMMENTS

Board recommends increased inspection effort in the area of Health Physics Technician Training.

13. MANAGEMENT CONTROLS

Analysis

Based on the results of three inspections during the evaluation period there have been three items of noncompliance in the area of management controls. In addition, numerous other items of noncompliance during this period are indicative of apparent weaknesses in the area of management controls. These items have involved inadequacies in operational procedures and lack of adherence to established procedures. The licensee has established a system for administrative and management controls. However, lack of adherence to these procedures at the lower management and supervisory levels has led to several incidents of noncompliance. In addition, lack of attention to detail and failure to recognize potential problem areas during periodic review and update of procedures has led to items of noncompliance related to procedural inadequacies. An additional area of management weakness is the licensee's failure to meet NRC commitment dates without notifying Region I of date slippage. (i.e. IST program implementation and HP commitment failures) This matter was specifically addressed at the April 29, 1980, enforcement conference and recent performance has shown improvement in this area. The station management is aware of the deficiencies in these areas and is taking steps to strengthen the overall system of management controls. Included in the corrective action is an increase in the number of personnel assigned to the plant staff and a reorganization that will place more direct management attention to the problem areas.

Conclusion

Average
~~Satisfactory~~ Performance except in the Health Physics and Radwaste area.

BOARD COMMENTS

Board recommends increased inspection effort by Region I personnel and RRI in this area.

14. FIRE PROTECTION

Analysis

There have been three fire protection inspections by the RC&ES Branch Engineering Support Section and one by the PAB during this evaluation period. In addition the RRI routinely performs fire protection inspections during plant tours. Two items of noncompliance have been identified, both relating to combustible materials storage on the 119 foot elevation of the reactor building. The licensee has attempted to obtain letters of agreement from fuel suppliers to provide only fire retardant fuel containers. The fuel suppliers have not complied with that request. The licensee is investigating the feasibility of performing a fire loading analysis to establish acceptable quantities of non-fire retardant materials that can be safely stored in vital areas.

Conclusion

Average
Satisfactory performance.

BOARD COMMENTS

Board is in agreement with the analysis and conclusion.

15. QA/QC

Analysis

One QA inspection was conducted by the RO&NS Branch Nuclear Support Section and one inspection by PAB during the evaluation period. Two items of noncompliance were identified concerning weld rod restorage and failure to maintain a duplicate file system when two modification packages could not be located on site.

Two unresolved items in the modifications area were identified and 9 of 11 previously identified items were closed. Additionally one item of noncompliance (weld rod storage) and one unresolved item identified by PAB were closed.

Conclusion

Average
~~Satisfactory~~ Performance

BOARD COMMENTS

Board is in agreement with the analysis and conclusion.

15. REVIEW AND AUDITS

Analysis

Inspections conducted by the RRIs have addressed the activities of the Site Safety Committees. There are no outstanding issues in this area. One inspection has been conducted of activities of the Off-Site Committee by PAB during this evaluation period. There were no items of noncompliance identified. A QA inspection (80-13) conducted by the Reactor Operations and Nuclear Support Branch, Nuclear Support Section during the evaluation period addressed Licensee QA Audits. No items of noncompliance were identified and a PAB identified item of noncompliance concerning audits and an unresolved item were closed.

A recent Health Physics Appraisal inspection (80-17, not yet issued) identified a recurrent audit finding that was previously identified by the PAB inspection (79-18). This item involved failure to complete an annual audit of the entire facility staff training and qualifications.

Conclusion

Average
~~Satisfactory~~ Performance with the exception of health physics audits.

BOARD COMMENTS

Board recommends increased inspection effort in the area of health physics audits.

17. REPORTING

Analysis

This area is under continuous review by the RRI's, in addition, one inspection was conducted by PAB during this evaluation period. One item of noncompliance was identified concerning the licensee's failure to report a minor change in the security organization. Two environmental reports were not submitted within the required time frame. These were identified by the licensee and one report was subsequently submitted. The second report was prepared; however, it was misplaced while in the licensee's administrative review process. This was identified by the licensee and submittal made approximately six (6) months after the event. Immediate telephone notification was made in each of the above incidents when discovered by the licensee.

Conclusion

Average
~~Satisfactory~~ performance.

BOARD COMMENTS

Board is in agreement with the analysis and conclusion.

18. PROCUREMENT

Analysis

This area was inspected by PAB during this evaluation period. No items of noncompliance were identified. The last RO&NS Branch Nuclear Support Section inspection in this area was in February - March, 1979.

Conclusion

Average
~~Satisfactory~~ Performance with present information.

BOARD COMMENTS

Board is in agreement with the analysis and conclusion.

OYSTER CREEK NUCLEAR GENERATING STATION

S.A.L.P. BOARD

SUPPLEMENTAL INFORMATION

OYSTER CREEK NUCLEAR .ERATING STATION

ENFORCEMENT HISTORY FROM AUGUST 1, 1979 TO JULY 31, 1980

Inspection Number	Severity	Functional Area	Subject
79-16	Deficiency	Surveillance Testing	Failure to document retest results following unsatisfactory surveillance test.
	Infraction	Surveillance Testing	Failure to consider SBGTS inoperable following failed surveillance test.
79-18	Infraction	Operations	Procedure No. 108 did not provide for independent verification of lifted leads and jumpers.
	Infraction	Fire Protection	Fire doors open and combustible material on 119 foot level of the reactor building.
	Infraction	Design Changes	Drawing lacking detail of pipe supports.
	Infraction	Design Changes	Inadequate instruction for .chor bolt installation and grouting.
	Infraction	Design Changes	Procedures and drawings not revised after completion of modification No. 213.
	Infraction	QA/QC	Duplicate file system not complete.
	Infraction	Training	Training plan not implemented. HP training program not established.
	Infraction	Management Control	Response to and closeout of nonconformance/corrective action required reports not timely.
	Infraction	Audits	Annual audit of staff training and qualification not conducted.
	Deficiency	QA/QC	Returned weld rod not reidentified and tagged for storage per procedure 300E.
	Infraction	Radiation Protection	Written procedures not established for calibration of various radiation, effluent, and gaseous monitors.
	Infraction	Radiation Protection	Effluents released by new radwaste not properly surveyed.

OYSTER CREEK NUCLE/ .ERATING STATION

ENFORCEMENT HISTORY FROM AUGUST 1, 1979 TO JULY 31, 1980

Inspection Number	Severity	Functional Area	Subject
79-18	Infraction	Surveillance	Analysis of samples from SBGTS charcoal adsorbers not performed.
	Deficiency	Reporting	Regional office not notified of minor change to security plan.
79-23	Infraction	Radwaste Operations	Failure to submit Technical Specification change request for new radwaste effluent releases.
	Deficiency	Radwaste Operations	Failure to maintain records pursuant to 10 CFR 71.62.
	Infraction	Radwaste Shipment	Failure to meet 10 CFR 71.3 prior to shipping radwaste.
	Infraction	Radwaste Operations	Failure to survey to meet 10 CFR 20.301.
79-24	Infraction	Fire Protection	Non fire retardant wood crates on 119 foot elevation of the reactor building.
80-03	Infraction	Radiation Protection	Failure to evaluate Beta monitoring as required by 10 CFR 20.201B.
	Infraction	Radiation Protection	Failure to use respiratory protection equipment in accordance with 10 CFR 20.103C.
	Infraction	Radiation Protection	Failure to follow procedures required by Technical Specification 6.11.
	Deficiency	Radiation Protection	Failure to label containers of radioactive material.
80-10	Deficiency	Management Control	LLRT procedure changed without proper documentation or approval.
	Infraction	Management Control	Failure to implement IST program for pumps and valves in accordance with ASME, Section XI.
80-11	Infraction	Radiation Protection	Failure to meet 10 CFR 20.103 (A)(3)(Air sampling)
	Infraction	Radiation Protection	Failure to use process, engineering controls or other precautionary procedures.

OYSTER CREEK NUCL NERATING STATION

ENFORCEMENT HISTORY FROM AUGUST 1, 1979 TO JULY 31, 1980

Inspection Number	Severity	Functional Area	Subject
80-11	Infraction	Radiation Protection	Failure to provide personnel monitoring as required by procedure.
	Infraction	Radiation Protection	Failure to instruct workers pursuant to 10 CFR 19.12.
	Violation	Radiation Protection	Failure to prepare procedures consistent with Technical Specification 6.8.1
80-12	Deficiency	Safeguards	Physical inventory failed to list 2 PuBe sources and listed a spent fuel pin by the wrong serial No.
80-17*	Infraction	Radiation Protection	No procedure prepared or tabulated list maintained to account for MPC hours.
	Infraction	Radiation Protection	Monthly ALARA meetings not conducted from November 11, 1979 to May 19, 1980.
	Infraction	Radiation Protection	Failure to perform voltage plateau on counter No. 172 between November 17, 1979 and May 19, 1980.
	Infraction	Review and Audit	Failure to conduct annual audit of facility staff training and qualifications between October 1978 and May 21, 1980.
80-19	Infraction	Refueling Operations	Failure to follow procedure No. 501 resulting in spent fuel pool overflow.
	Infraction	Refueling Operations	Failure to remove control rod interlock bypass jumpers.
80-23	Infraction	Operations	No adequate mechanism provided for issuance of management instructions of short term applicability.

* Inspection Report not issued.

OYSTER CREEK NUCLEAR GENERATING STATION
ENFORCEMENT SUMMARY FROM AUGUST 1, 1979 to JULY 31, 1980

Functional Area of Noncompliance	PERIOD 8/1/79 to 1/31/80			PERIOD 2/1/80 to 7/31/80			TOTALS
	INSPT'd	(INC)	VIOL/INF/DEF	INSPT'd	(INC)	VIOL/INF/DEF	VIOL/INF/DEF
Plant Operations	2	(1)	0/1/0	1	(1)	0/1/0	0/2/0
Refueling Operations	3		0/0/0	2	(1)	0/2/0	0/2/0
Radiation Protection	3	(2)	0/5/1	3	(2)	1/7/0	1/12/1
Radwaste Operations	2	(1)	0/2/1	NONE		0/0/0	0/2/1
Radwaste Shipment	1	(1)	0/1/0	1		0/0/0	0/1/0
Maintenance	2		0/0/0	NONE		0/0/0	0/0/0
Security and Safeguards	2		0/0/0	2	(1)	0/0/1	0/0/1
Surveillance and Post Refuel Testing	2	(2)	0/2/1	4		0/0/0	0/2/1
Design Changes and Modifications	2	(1)	0/3/0	1		0/0/0	0/3/0
Emergency Planning	1		0/0/0	1		0/0/0	0/0/0
Environmental	1		0/0/0	1		0/0/0	0/0/0
Training	1	(1)	0/1/0	NONE		0/0/0	0/1/0
Management Controls	1	(1)	0/1/0	2	(2)	0/1/1	0/2/1
Fire Protection	2	(2)	0/2/0	1		0/0/0	0/2/0
QA/QC	1	(1)	0/1/1	1		0/0/0	0/1/1
Review and Audit	2	(1)	0/1/0	1		0/1/0	0/2/0
Reporting	1	(1)	0/0/1	1		0/0/0	0/0/1
Procurement	1		0/0/0	NONE		0/0/0	0/0/0

Notes: 1. INSPT'd - Number of times that area was inspected during the period of interest
2. No Deviations were issued during the period of interest.
3. (INC) - Number of inspections a noncompliance was found

OYSTER CREEK NUCLEAR GEN   3 STATION
LICENSEE EVENT REPOR. .NOPSIS
August 1, 1979 to July 31, 1980

LER Number	Type	Cause Code	Description
79-25	30 Day	D	Primary Containment degraded when torus sample valve was left open.
79-26	30 Day	A	Laundry drain tank discharge pipe failure resulting in release of radioactive material.
79-27 (*10)	24 Hour	B	Discovery of six seismic restraints for the six inch core spray test line which were either in positions other than required by original design criteria or had failed.
79-28	30 Day	E	Core Spray isolation valve V-20-15 inoperable in the open position due to inadvertant initiation of close signal while the valve was stroking open.
79-29	30 Day	C	Source range monitor rod block setpoint lower (94 CPS) than Technical Specification limit of 100 CPS.
79-30	30 Day	D	'A' CRD hydraulic pump out of service for ten hours due to vent piping leak.
79-31	30 Day	D	'B' CRD hydraulic pump out of service due to outboard seal water pipe nipple leak.
79-32 (*20)	30 Day	A	Three small leaks on service water side of 1-3 containment spray heat exchanger caused by galvanic action between 90/10 Cu-Ni and carbon steel.
79-33	30 Day	A	One of five electromatic relief valve setpoints found above Technical Specification value due to a failed switch.
79-34	24 Hour	D	Secondary containment violation - both reactor building doors open.
79-35	30 Day	E	One main steam line high radiation monitor setpoint found two percent above Technical Specification limit.
79-36 (*30)	30 Day	D	Containment spray compartment door found open. Door was closed and dogged. Containment spray system I was considered inoperable while doors were open.
79-37	30 Day	A	Failure of core spray booster pump to start during routine surveillance due to defective control power fuse holder.

OYSTER CREEK NUCLEAR GE[illegible]NG STATION
LICENSEE EVENT REPO[illegible] SYNOPSIS
August [illegible], 1979 to July 31, 1980

LER Number	Type	Cause Code	Description
79-38	30 Day	A	Failure of D.G. No. 1 to start due to position switch adjustment.
79-39	30 Day	A	APRM Channel No. 1 rod block setpoint found one percent above Technical Specification limit.
79-40	30 Day	C	Failure to perform Methyl Iodide removal efficiency of SBGTS charcoal filters. Tested satisfactorily.
79-41	30 Day	[illegible]	Radioactive releases (low level) from new radwaste building not accurately monitored.
79-42	30 Day	A	Inadvertent lifting of one electromatic relief valve due to setpoint drift of new pressure switch.
79-43	30 Day	A	Failure of one reactor building to torus vacuum breaker to open during surveillance testing.
79-44	30 Day	D	Reactor building to torus vacuum breaker blocked from opening more than 50 percent due to contractor scaffolding.
ETS 79-04 (*40)	10 Day	A	Second dilution pump not run for 40 minutes due to equipment problems.
ETS 79-05 (*41)	10 Day	E	Fish kill of 50 to 100 fish.
ETS 79-06	10 Day	B	Only one dilution pump in service for a period of 26 minutes when two were required.
ETS 79-07	10 Day	D	Loss of one dilution pump for 92 minutes when two pumps were required.
ETS 79-08	10 Day	B	One dilution pump off (tripped) for 20 minutes when two pumps were required.
80-01	24 Hour	A	Failure of one of five ADS valves to operate during functional testing.
80-02	30 Day	D	One fuel bundle found misoriented 180 degrees. Subsequent evaluation indicated no damage to the bundle.
80-03	24 Hour	A	Discovery of two crack indications in core spray sparger (System II).

OYSTER CREEK NUCLEAR GE. NG STATION
LICENSEE EVENT REPOR. SYNOPSIS
August 1, 1979 to July 31, 1980

LER Number	Type	Cause Code	Description
80-04	30 Day	A	Several leaks found in underground aluminum condensate lines. Leakage was due to galvanic corrosion.
80-05	30 Day	D	Reactor building ventilation monitor trip setpoints found above Technical Specification limits.
80-06	30 Day	E	Recirculation flow sensors (zero percent) found out of tolerance on six of eight channels. Reactor scram setpoints on three of eight channels above limit due to zero setpoint drift.
80-07	30 Day	A	Low flow on SBGTS No. 1 due to slipping belts on fan.
80-08 (*11)	24 Hour	B	Nine pipe clamps which connect snubbers to isolation condenser piping were found not installed per design. (IEB 79-14)
80-09 (*21)	30 Day	B	Tube leakage on all containment spray heat exchangers. Tubes being replaced during refueling outage.
80-10 (*12)	24 Hour	B	Three pipe hangers in the liquid poison system not installed per design. One restraint in RWCU system not installed per design.
80-11	30 Day	A	SBGTS tripped when flow indication indicated zero due to a leaking instrument sensing line.
80-12	30 Day	D	Weekly surveillance of diesel and station battery not conducted.
80-13	24 Hour	A	Fire System taken out of service to repair a leaking valve in the supply header.
80-14	24 Hour	A	Diesel generator No. 1 failed to synchronize and tripped during surveillance testing. Plant was in cold shutdown.
80-15	30 Day	A	Reactor building automatic isolation valve inoperative (one of two in series) due to broken piston rod eye stud.
80-16	24 Hour	A	Defective main generator load reject sensor pressure switch.

... STATION
...ABLE EVENT REPORT SYNOPSIS
August 1, 1979 to July 31, 1980

LER Number	Type	Cause Code	Description
80-17	24 Hour	D	Rod block bypasss jumpers (two) were left in place. Administrative control checks prevented movement of more than 1 control rod during refueling.
80-18	30 Day	E	Reactor high pressure scram sensor (RE03D) less conservative than Technical Specification limit. Plant was in cold shutdown.
80-19	30 Day	E	Lift pressure of core spray system relief valves (V-20-25 and V-20-24) improperly set.
80-20	24 Hour	A	Identification of degraded fire barriers and failure to establish required fire watch.
80-21	NA	NA	LER No. erroneously assigned - issued as 80-24
80-22	30 Day	E	Trip points of three of four isolation condenser initiation pressure switches were less conservative than Technical Specification limits. Plant was in cold shutdown.
80-23	30 Day	E	Electromatic relief valve high pressure sensors (1A83B and 1A83E) trip points exceeded Technical Specification limits by 1.5 and 2.8 PSIG respectively.
80-24	30 Day	D	One rod free travel surveillance not conducted as required.
80-25	24 Hour	A	Fire suppression system removed from service for replacement of PIV valves V-19-12 and V-19-8.
80-26	30 Day	A	Failure of one hydraulic snubber to lock-up in compression. Plant was in cold shutdown.
80-27	24 Hour	D	Reactor building to suppression chamber vacuum breaker system inlet pipe found blocked by plastic cover.
80-28	30 Day	E	Two of four reactor high pressure scram sensor (RE03C and RE03D) setpoints found above Technical Specification limits.

OYSTER CREEK NUCLEAR ATING STATION
LICENSEE EVENT . SYNOPSIS
August 1, 1979 to July 31, 1980

LER Number	Type	Cause Code	Description
80-29	30 Day	A	Failure of drywell high pressure switch and subsequent initiation of core spray (no injection). Resulted in manual defeat of both core spray systems and plant shutdown.
80-30	30 Day	A	Failure of one electromatic relief valve to operate during operability testing.
80-31	30 Day	A	Failure of one hydraulic snubber to lock up in tension.
80-32 (*31)	24 Hour	D	Both watertight doors to containment spray pump rooms found open.
80-33	30 Day	E	Torus oxygen concentration above five percent. Reactor shutdown was commenced then terminated when the concentration was reduced to less than five percent.
80-34	30 Day	A	SBGTS No. 1 tripped due to overload during routine surveillance.
ETS 80-01	10 Day	E	Fish kill during plant shutdown for refueling on January 5, 1980.
ETS 80-02	10 Day	C	Less than two dilution pumps in operation when water temperature was less than 60 F.
ETS 80-03	10 Day	A	Failure to run second dilution pump when Route 9 bridge temperature was above 87 F.
ETS 80-04	10 Day	B	Loss of dilution pumps, seven times over a three day period, due to high lube oil temperature trips.

Notes: Cause Codes: A - Component Failure
B - Design/Fabrication/Analysis Error
C - Defective Procedures
D - Personnel Error
E - Other

* Causally linked event element:

(xo) Initial group element
(xy) Subsequent group element(s)

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

SEP 03 1981

MEMORANDUM FOR: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

FROM: William E. Kreger, Assistant Director for Radiation Protection, DSI

SUBJECT: PRESS RELEASE ON OCCUPATIONAL RADIATION EXPOSURES IN 1980 FOR LWRs

The Environmental Policy [illegible] (EPC) (Robert Alvarez) issued a press release on 9/2/81 on the issue of [illegible]pational radiation exposures in 1980 at LWRs. It quoted the data presented [illegible] the May 28, 1981 memorandum from Charles Hinson to me, which was attached to the Commission Information paper, "Unusually High Occupational Radiation Doses Reported For Power Reactors Operating in 1980" (SECY-81-517, August 28, 1981). As a result of the release, Public Affairs had me talk to Ed Roby of UP, and Joanne Omang of the Washington Post and Linda Co[illegible]bs of RKO news service called me directl[illegible] [illegible]'m not sure all of these came through Public Affairs).

I made the following points:

1. The collective exposure increase is caused primarily by the need to backfit safety items, partly industry identified, or to repair steam generators.

2. The activities are pursued under the ALARA concept whereby individual exposures were both within regulatory (safe) limits and minimized by ALARA procedures and practices.

3. The individual exposure average did not go up significantly so that individual risk did not rise. Radiation worker risk is relatively low among industrial occupations.

4. The 3-10 cancers (54,000 person rem in 1980) used in the EPC release is reasonably accurate, but should be characterized as potential cancers, and, in accordance with NAS-NRC BEIR report, should not exclude zero cancers as a possible outcome of the exposures.

5. We would expect new plants coming on line to bring the average exposures down because they were designed with more "ALARA" features.

6. The exposures in older plants in 1982, after two years of backfit activities, should go back down to "normal" levels experienced in years prior to 1980. Industry is beginning to understand the buildup of activated

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corrosion products (CRUD) and should soon be able to prevent the gradual increase in radiation levels in such plants, thus adding an additional control on the previously gradual rise in annual collective occupational radiation exposure per reactor at operating LWRs.

William E. Kreger

William E. Kreger, Assistant Director
for Radiation Protection
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ANALYSIS OF NRC DATA

ON NUCLEAR POWER PLANT WORKER EXPOSURES TO RADIATION

by Fred Millar and Bob Alvarez
September 1, 1981

Increases in Worker Exposures: "An All-Time High"

The most recent data compiled by the U.S. Nuclear Regulatory Commission (NRC) reveals an alarming increase of 33% in the average radiation exposures to the total workforce in U.S. nuclear power plants between 1979 and 1980. While the total number of commercial operating nuclear power plants in 1980 rose by only one new plant, from 67 to 68, the total worker radiation exposures for all operating nuclear plants increased from 39,759 person-rems in 1979 to 53,797 person-rems in 1980, an increase of 35%.* "The average yearly exposure for all commercial nuclear reactors," according to the latest NRC report, dated May 28, 1981, "is at an all-time high of 791 person-rems per reactor."

The big 1980 increase was no flash in the pan. Nuclear plant worker radiation doses have been rising steeply for the last three years. The 1979 average dose of 593 person-rems per reactor was itself a 20% rise from the year before. In addition, the 1979-1980 rise of 35% in total collective dose followed a similar rise of 25% between 1978-1979. The data thus provide persuasive refutation to comments by industry and NRC officials who have repeatedly suggested that some particular problem in the nuclear reactors has been given a "one-shot" fix requiring extraordinary radiation doses to workers, but that similar steep increases will not continue to occur.

NRC collects data annually from nuclear plant operators in two different ways. Data from the most recent reports show that the long-range trend in

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* When radiation doses are measured for large populations, like reactor workers, the unit person-rem is used. This measure is also used in estimating the risk of dying from radiation-induced cancer. Person-rems are derived by multiplying the total number of people exposed times their average dose in rems. Or it can be the actual sum of all doses received. For example, 10,000 person-rems is a dose received by 5,000 people exposed to 2 rems each; or by 10,000 people exposed to one rem.

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U.S. nuclear reactor radiation exposures to their workforce has been a rise of 400% over ten years, from an average of less than 200 person-rems per reactor in 1969 to nearly 800 person-rems per reactor in 1980.

This high level of total worker exposures was not anticipated by those who have had to calculate the possible costs and benefits of nuclear power generation.

As we shall see below, the consequences of the large increases in terms of future cancers, deaths, and genetic damage are extremely serious. The continued exposures at unanticipated high levels confront the NRC with a clear problem in terms of its regulatory responsibility for health and safety.

The Results of Worker Radiation Exposures: Cancers, Deaths, Genetic Damage

The long-term implications of the steep-rise in workers' total radiation exposure are sobering, given the recent scientific estimates on the risks of low-level radiation exposure. Even the most conservative estimates give reason for grave concern.

In the case of reactor workers a total of 53,797 person-rems were accumulated in 1980, representing a 33 percent increase over the 39,759 person-rems accumulated in 1979. The new NRC documents analyzed here do not have a breakdown of how many workers were exposed or their individual exposures.

Cancers which have been shown to be initiated by radiation include leukemia, bone marrow, pancreas, lung, large intestine, thyroid, liver and breast. Scientists' estimates of the risk of dying from radiation-induced cancer vary widely, as the table on the next page suggests.

In terms of the risk of genetic damage, the risks to workers' children and future generations are significant. According to the National Academy of Sciences BEIR I and III reports, if 50,000 person-rems accumulate each year among reactor workers for 20 years, there will be as many as 3,000 excess human heredity disorders for every 100,000 progeny. Taking these estimates further and assuming that in ten generations no intermarriage with like-damaged individuals takes place, the 50,000 person-rems of radiation would

ESTIMATES OF RADIATION-INDUCED CANCER DEATHS FOR 1980 REACTOR WORKERS*

BEIR I (1972)	2-4 cancer deaths	50-80 mil. person-rems[(a)]
BEIR III (1979)	3-15 cancer deaths	70-353 per mil. person-rems[(a)]
BEIR III (1980)	3-10 cancer deaths	77-226 per mil. person-rems[(a)]
UNSCEAR (1977)	5 cancer deaths	100 per mil. person-rems[(b)]
Radford (1981)	10-30 cancer deaths	200-600 per mil. person-rems[(c)]
Gofman (1977)	200 cancer deaths	3771 per mil. person-rems[(d)]
Morgan (1979)	350 cancer deaths	7000 per mil. person-rems[(e)]

* The 53,797 person-rems reported by the NRC has been rounded off to 50,000

a) National Academy of Sciences Advisory Committee on the Biological Effects of Ionizing Radiation (BEIR Committee), reports for 1972, 1979 and 1980.

b) United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) 1977.

c) Radford, E., Science, August 7, 1981.

d) Gofman, J.W., Health Physics, July 1981.

e) Morgan, K.Z., Bulletin of Atomic Scientists, September 1979. (Morgan's estimates, unlike the above, are based on the Hanford data of Mancuso, Stewart, and Kneale, published in Health Physics, November 1977).

ultimately produce as many as 1.5 million living children with heredity disorders and 4,600 recognized miscarriages in excess of the normal number.

"Used-up Workers" Outpace Electricity Production

Are the huge increases in nuclear plant worker exposures matched by increases in electricity produced? Not by a long shot. Data from an NRC study released in March 1981 (NUREG-0713) show that during the period 1969-1979, the number of U.S. operating reactors increased 950%, from 7 to 67 reactors. Total doses to workers, however, rose four times as fast, nearly 3200%, from 1247 person-rems in 1969 to 39,759 person-rems in 1979. Total electricity generated during the period did not keep pace with worker exposures; the former rose 2321%, from 1289 megawatt-years in 1969 to 29,920 megawatt-years in 1979.

Nuclear plants each have "used up" more and more radiation workers; the average number of radiation workers exposed in a single nuclear plant in 1969 was 145, whereas in 1979 the average was 1010 workers exposed, a rise of 696%.

The reported average dose for individual workers, which is regulated by the NRC, has been kept well within regulatory limits, in fact has ranged from a high of 1.03 rems in 1969 to .73 rems in 1979. This level has been accomplished, however, by the using up of a total of 64,073 radiation workers in U.S. nuclear plants in 1979 compared with 744 in 1969, a rise of 8600 %. The total amount of radiation to the workforce is not regulated by the NRC or any other agency, unlike the amount of a nuclear plant's radiation releases to the environment, which is regulated by limits set by U.S. EPA.

Even so, official estimates of average radiation doses to individual workers have over time been proven seriously below the actual experience of nuclear workers. In 1972 the EPA predicted that the greatest increase in occupational radiation exposures would not be from the rapidly expanding medical applications, but from industrial uses, particularly nuclear power plants. EPA suggested that the average annual dose to individual reactor workers by the year 2000 would not exceed .225 rem. By 1979 the NRC reported the average annaul individual exposure to be .680 rems, more than three times the EPA prediction for the end of the century.

What Explains the Recent Large Worker Radiation Exposure Increases?

There is no one answer, but some educated guesses can be made. In the first place, NRC data reveals that one major type of nuclear reactor is much hotter overall for its workers than the other major type.

Boiling-water reactors (BWRs) exposed their workforce in 1980 to nearly double the average yearly exposures compared with pressurized-water reactors (PWRs). The 1979-1980 increase in average exposures per boiling-water reactor was 55%, from 733 to 1136, while the pressurized water reactor increase was 13%, from 510 to 578 person-rems. Understanding the exposure differences requires a closer look at what is going on at the 68 operating U.S. commercial reactors: many BWRs have needed several specific major repair jobs requiring workforce exposures to many person-rems of radiation.

Some Plants Are "Hotter" Than Others: Frequent Repairs Needed

"It should be noted," stated a 1981 NRC report, "that there are significant differences in nuclear plant designs, even between plants of a given type." Some individual plants have been much "hotter" in radiation exposures (in person-rems) for their workers than others. The hottest of 30 pressurized water reactors (and their 1979/1980 exposure totals) were: San Onofre (150/2400), Surry (1800/1950), Robinson (1200/1850), Connecticut Yankee (1150/1350), Haddam Neck and Turkey Point (830/820). The hottest of 18 boiling-water reactors (and their 1979/1980 exposure totals) were: Pilgrim (1000/3650), Quad Cities (1100/2400), Millstone (1800/2160), Fitzpatrick (850/2050), Brunswick (1300/1950), and Oyster Creek (470/1730).

In all of the hottest PWRs with the exception of Connecticut Yankee, abnormally high 1979 and 1980 radiation exposures can almost certainly be attributed to the expensive, lengthy, and extraordinary inspection and repair operations required by the premature corrosion and leakage of the radioactive steam generators, a generic problem which also afflicts nearly all PWRs in the U.S. and Europe. The replacement of only one plant's failed steam generators, at the two Surry reactors in Virginia, cost hundreds of workers in 1978-79 a total of over 2000 person-rems.

The other "hottest" PWRs have undergone similar costly large scale repairs or the leaks in their extremely radioactive steam generator tubes have been frequently "plugged" at great cost in worker exposures. Recently developed remote "robot" equipment may soon be able to reduce worker exposures somewhat in the major repair jobs which many nuclear plants will eventually have to undergo, but repair techniques developed in the lab for steam generator problems have not always worked in actual on-site repair operations (e.g., tube welding in the 1980-81 San Onofre "sleeving").

Major repairs on such failed components and safety-related modifications required by NRC have clearly assumed a greater and greater importance for exposures to nuclear workers. One category of NRC worker exposure data, "Special Maintenance", accounted for only 19% of the annual collective radiation dose in 1975, but has doubled to around 40% in recent years. NRC does not, however, require nuclear utilities to submit detailed regular reports on which specific repair or maintenance jobs led to large worker exposures.

NRC officials can only guess, therefore, about what factors account for the large increases in worker radiation doses that numerous nuclear plants of both types are experiencing. The 1981 NRC report NUREG-0731 says:

> Usually, when a plant reports a large annual collective dose, and a large man-rems to megawatt-year ratio as well, it indicates that extensive maintenance or modifications were undertaken during the year. Also, numerous plants reported increases in their collective doses as a result of the actions that the NRC required operating reactors to take because of the Three Mile Island 2 accident and NRC's concern for seismic design deficiencies in safety-related piping. And again in 1978, several PWRs reported substantial collective doses associated with the inspection and repair of steam generator tubes. Some major activities at BWRs that accounted for a portion of the 1979 collective dose were inspection and maintenance of shock suppressors, and maintenance and repair of various valves.

Several NRC officials, however, report that safety-related modifications required from the "lessons learned" at Three Mile Island have not yet begun at most nuclear plants, so that these NRC requirements are not yet a significant explanation for increased worker doses. (In general, older nuclear plants are hotter for their workers because more of the reactor piping and other equipment has been irradiated during operation. But the recent

NRC data does not allow an analysis of exactly how much hotter the older plants are.)

The "ALARA" Philosophy

Without an absolute regulatory limit on total exposures to their nuclear workers, the nuclear industry is constrained only by what is termed the "ALARA" philosophy. "As low as reasonably achievable" radiation exposure to workers is the goal towards which NRC pushes the nuclear utilities. Despite ten years of nuclear reactor experience, however, the nuclear industry has not improved its ability to reduce the total worker radiation exposures measured against the amounts of electricity produced. The average ratio over the eleven-year period 1969-1979 has hovered around a level of 1.3 person-rems per megawatt-year. The 1979 figure was 1.3, up from a ten-year low in 1978 of 1.0 person-rems per reactor year. Some NRC officials say that the "more progressive" nuclear plants are compiling books on history of various repair jobs in different plants, in order to learn how worker exposures can be reduced.

The key question is obvious: what does "reasonably achievable" mean? Shielding workers from radiation can be a very expensive problem for nuclear management. The NRC has not required nuclear utilities to report how much money they are spending to reduce worker exposures to "ALARA", nor has NRC made a rule as to how much a utility is required to spend in order to reduce a given amount of such exposures. Rather than strict cost-benefit analysis, utilities use "common-sense" approaches as to what works to reduce exposures, according to NRC. NRC does not, moreover, independently monitor the accuracy of utility-reported radiation exposures, although a more vigorous NRC effort in this area is being contemplated.

A significant number of nuclear plant workers are transient workers, about 3200 each year who worked at from two to nine different nuclear facilities during 1977, 1978 and 1979. Only a small number of nuclear workers (27 in 1977, 9 in 1978, 21 in 1979) received reported exposures above the allowed quarterly limits. NRC has only "limited" data on the "career doses" of nuclear workers, since it collects data only for employees "terminating" with a nuclear plant, not for ongoing workers.

Those NRC officials charged with maintaining worker radiation exposures "ALARA" seem to feel beleaguered by the recent onrush of high radiation-impact demands in nuclear plant operation. And the future looks grim: a NIOSH report prepared by health physicist David Scott, dated March 30, 1980, suggests that the trend of increasing person-rem exposure will be dramatic. Scott projects current trends and calculates that within the next 7 years 105,000 reactor workers may annually be receiving measurable radiation doses.

How Much Radiation, And For Whom?

Early estimates of how much total radiation nuclear plant workers would get were very low. NRC officials now report that their most recent Environmental Impact Statements for newly-licensed nuclear plants contain much higher estimates of future worker exposures, reflecting the regrettable experience of recent years.

How much total radiation exposure to a workforce <u>should</u> be tolerated in the centralized production of electricity? This seems to be a question no one has asked in any effective way. Nuclear plant managers report that their main question is whether they can keep the plant operating. Recent repair operations such as the Surry steam generator replacement operation, requiring hundreds of workers and record levels of total exposure (2020 person-rems for this one repair operation, despite elaborate dose-reduction techniques), seem to indicate that total worker exposures are not considered to have any foreseeable limit from the utilities' current cost-benefit perspective. A possible limit on the numbers of some skilled craftspeople might be the most compelling factor in this area.

As long as major repair operations are required for flaws in highly radioactive nuclear reactor piping and other components, "nothing much can be done" to reduce total workforce exposures to previously anticipated levels, according to N[illegible] officials.

[illegible], just one of the dilemmas in nuclear power safety is that when nuc[illegible]s implement measures to control radiation released to the public and [illegible]vironment surrounding the plant, more radioactive material is kept inside the plant, thus to some extent shifting the radiation burden to nuclear plant workers. This is not, however, a major contributor to the workers' overall exposures, the majority of which is from increased radioactivity in permanent nuclear plant components.

Resources

Our brief analysis of occupational radiation exposures is not a comprehensive survey of the problem. The following resources contain valuable data and analysis that complement this EPI study.

NUREG - 0713, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors, 1979: Annual Report." B.G. Brooks, Office of Management and Program Analysis, U.S. Nuclear Regulatory Commission. Latest in a series of annual reports including plant-by-plant data (1978 version was NUREG-0594). Available for about $5.00 from National Technical Information Service, Springfield, VA 22161.

"Preliminary LWR Exposure Data for 1980", Memo from Charles Hinson, Radiological Assessment Branch to William E. Kreger, Assistant Director for Radiation Protection, U.S. Nuclear Regulatory Commission, dated May 28, 1981. 10 pp. with charts showing historical trends. Xerox available from Environmental Policy Center, 317 Pennsylvania Avenue, S.E., Washington, D.C. 20003.

"A Review of Radiation Protection Principles and Practices and the Potential for Worker Exposure to Radiation: A Research Report for the National Institute for Occupational Safety and Health", David M. Scott, Health Physicist, Rockville, Md., March 30, 1980. 122 pp. An excellent discussion, especially of the Three-Mile Island accident's implications for worker exposures. Good critique of current federal regulatory activity.

"Atomic Worker's Guide to the Most Unsafe Atomic Power Plants in 1977". Public Citizen Health Research Group, Dr. Sidney Wolfe, Dept. 411, 2000 P Street, N.W., Washington, D.C. 20036, (202)872-0320. $2.00 each. Somewhat dated, but a valuable discussion of the overall situation which goes beyond this brief analysis. 23 pp.

"Plutonium and the Workplace: An Assessment of Health and Safety Procedures For Workers at the Kerr/McGee Plutonium Fuel Fabrication Facility," by Kitty Tucker and Elli Walters, March 1979, p. 103. A detailed analysis of utilizing official documents and worker interviews of worker health and safety at a commercial plutonium fuel fabrication facility. A timely report in the face of renewed support by the Reagan Administration for the commercial development of plutonium fuels. Available from the Environmental Policy Institute.

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MEMORANDUM FOR: R. Wayne Houston, Assistant Director for Radiation Protection, DSI

FROM: Frank J. Congel, Chief
Radiological Assessment Branch, DSI

SUBJECT: PRELIMINARY LWR OCCUPATIONAL DOSE DATA FOR 1981

Attached is a preliminary compilation and analysis of occupational radiation doses reported from 70 light water cooled nuclear reactors (LWRs) for the year 1981. The information in this memorandum was derived from reports submitted to the Commission in accordance with 10 CFR Part 20.407. Two PWR units, Arkansas 2 and North Anna 2, completed their first full year of commercial operation in 1981 and are included in this year's summary for the first time. In addition, this summary includes four units (Dresden 1, Humboldt Bay, Indian Point 1, and Three Mile Island 2) that are currently shutdown for an indefinite period of time. These units have been retained in this summary since they are still licensed and dose is still accumulate to maintain them.

The total collective dose reported for 1981 was 54,555 person-rems, an increase of 1.3 percent over the 1980 figure of 53,797 person-rems. This total gives an averag of 779 person-rems per unit, which is slightly lower than the 791 person-rems per unit reported for 1980. This leveling off of the average person-rems per unit follows two years of increases during which the average dose per unit rose from 497 person-rems in 1978 to 791 person-rems in 1980.

In 1981 the average dose for PWR units was 656 person-rems, a 13% increase over the 1980 average of 578 person-rems. The 1981 average BWR dose of 988 person-rems per unit is a 13% decrease from the 1980 average of 1136 person-rems. Seventeen plants reported collective dose reductions 30% or more. Six of these seventeen pla reported 1981 doses per unit that were less than half of their 1980 doses. None of these six plants had a major refueling outage in 1981. For the eighth consecutive year, the average annual dose per unit for BWR's remained higher than the PWR avera Figure 1 shows the trends in average yearly LWR doses from 1969 to 1981. Figure 2 breaks these doses down to BWR and PWR units for the same time period. Table 1 presents the computed person-rems accumulated at each LWR plant in 1981. Figures 3 4a and 4b give the total doses reported for each plant from 1979 thru 1981.

In an effort to obtain background information on the collective dose reported by the plants, the staff had informal telephone conversations with the radiation prote staff at several plants. Attention was given to plants whose reported collective doses had shown significant changes, either increasing or decreasing, between 1980 and 1981. We asked the licensees' staff to identify the major dose intensive jobs performed at their plants in 1981. The licensees' staff were also asked to identif

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a cause for the significant change in dose accumulated at their plants.

On the basis of these calls, no item could be singled out as a cause for the significantly increased doses. Each plant contacted implements its own method for categorizing plant activities. Although correlating these activities to trends in dose is difficult, some similarities in the responses can be seen. For BWR's the licensees' staff stated that torus modifications contributed significantly to their 1981 doses. Other plants, both BWRs and PWRs, singled out in-service inspections a[illegible] plant modification (such as pipe hangars, snubbers, fire protection, and post-accid[illegible] sampling) as significant contributors. The staff at most PWRs also stated that an increasing amount of steam generator work (including eddy current testing and tube plugging) contributed to their dose increases.

The most frequent reason given for the observed decreases in dose from 1980 to 1981 was that the plant did not have a major refueling or maintenance outage in 1981. One individual contacted did state that this particular plant had finished NRC-mandated plant modifications in 1980, resulting in lower 1981 doses. Several of the licensees' staff members, whose plants had no refueling outage in 1981, said they anticipated increases in 1982 doses since they still have several major modificatio[illegible] and inspections (such as the torus mods and pipe hangar inspections) to complete.

This information was completed by R. Pedersen and C. Hinson, RPS, RAB.

Frank J. Congel

Frank J. Congel, Chief
Radiological Assessment Branch
Division of Systems Integration

Attachment:
As Stated

TABLE 1

PLANT NAME	TYPE	AGE	20.407 (RG 1.16)
Arkansas I, II (N)	P	7 1	1102 (890)
Beaver Valley I	P	5	227 (146)
Big Rock Point	B	13	160* (134)
Brown's Ferry I, II, III	B	7 6 4	2469 ( )
Brunswick I, II	B	6 4	2729 (2558)
Calvert Cliffs I, II	P	6 4	407 (538)
Cook I, II	P	6 3	656 (604)
Cooper Station	B	7	579 (544)
Crystal River III	P	4	408 (362)
Davis Besse I	P	4	68 (85)
Dresden I, II, III	B	21 11 10	2802 (2302)
Duane Arnold	B	6	790 (839)
Farley I	P	4	512 (497)
FitzPatrick	B	6	1425 (1364)
Fort Calhoun I	P	8	458 (450)
Ginna	P	11	655 (614)
Haddam Neck (Connecticut Yankee)	P	13	1089 (1073)
Hatch I + II	B	6 2	1337 (1294)
Humboldt Bay	B	18	9 ( )
Indian Point I, II	P	19 8	2731 (2633)
Indian Point III	P	5	371 (405)
Kewaunee	P	7	141 (127)
LaCrosse	B	12	123 (116)
Maine Yankee	P	9	424 (281)
Millstone I	B	10	1496 (1399)
Millstone II	P	6	531 (497)
Monticello	B	10	1042 (991)
Nine Mile Pt	B	12	1592 (1588)
North Anna I, II (N)	P	3 1	680 (777)
Oconee I, II, III	P	8 7 7	1302 (1364)
[illegible]	B	12	917 (639)

PLANT NAME	TYPE	AGE
Palisades	P	10
Peach Bottom II, III	B	7 7
Pilgrim	B	9
Point Beach I, II	P	11 9
Prairie Island I, II	P	8 7
Quad Cities I, II	B	8 8
Rancho Seco I	P	6
Robinson II	P	10
Salem I	P	4
San Onofre I	P	13
St. Lucie I	P	5
Surry I, II	P	9 8
Three Mile Island I, II	P	7 3
Trojan	P	5
Turkey Point III, IV	P	7 8
Vermont Yankee	B	9
Yankee Rowe	P	15
Zion I, II	P	8 7

REACTOR TYPE	NO.	20.407 TOTAL PERSON-REMS	20[illegible] PERS[illegible]
PWR	44	28865	
BWR	26	25690	
LWR	70	54555	

FIGURE 1

AVERAGE PERSON - REMS per YEAR
(LWR's)

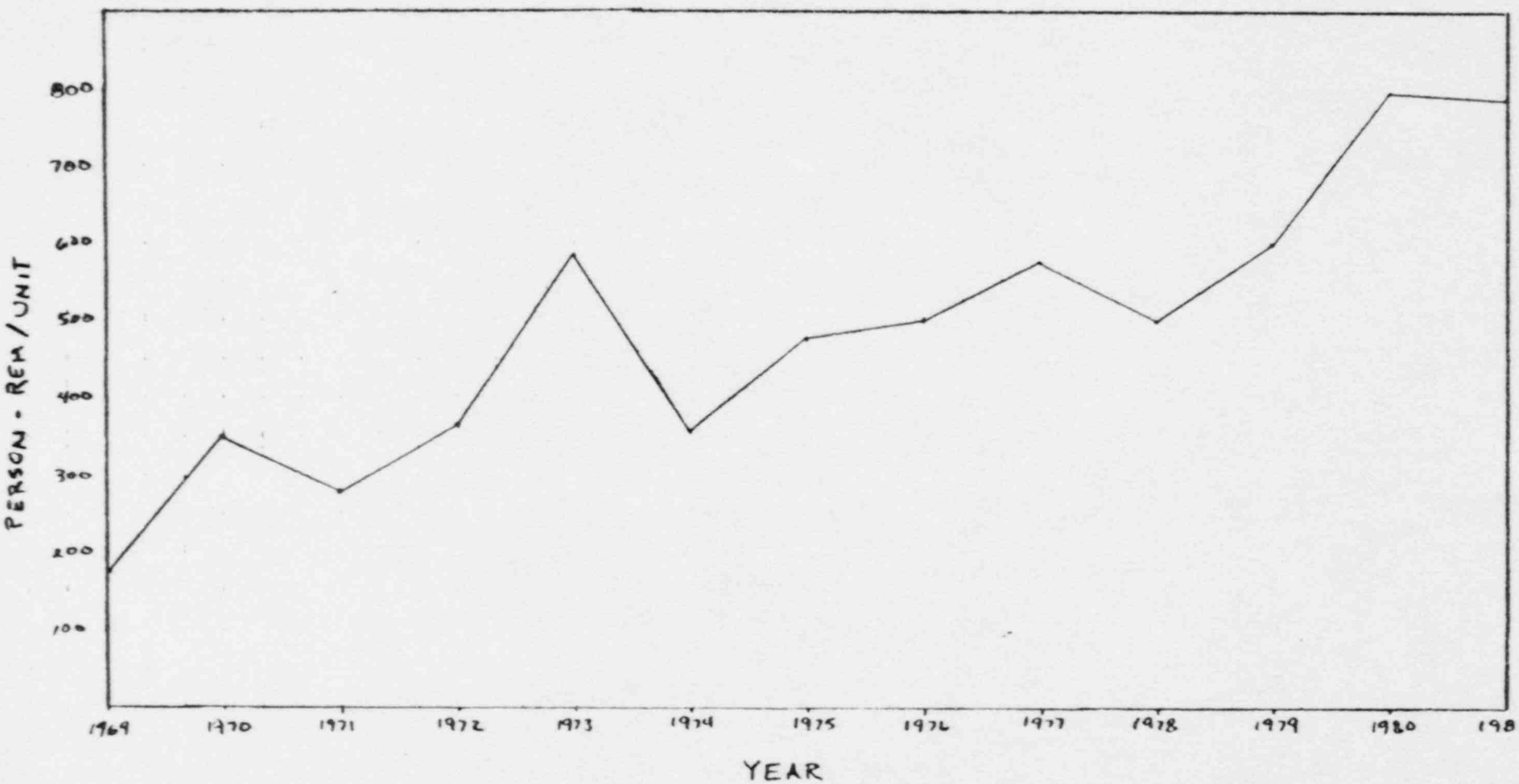
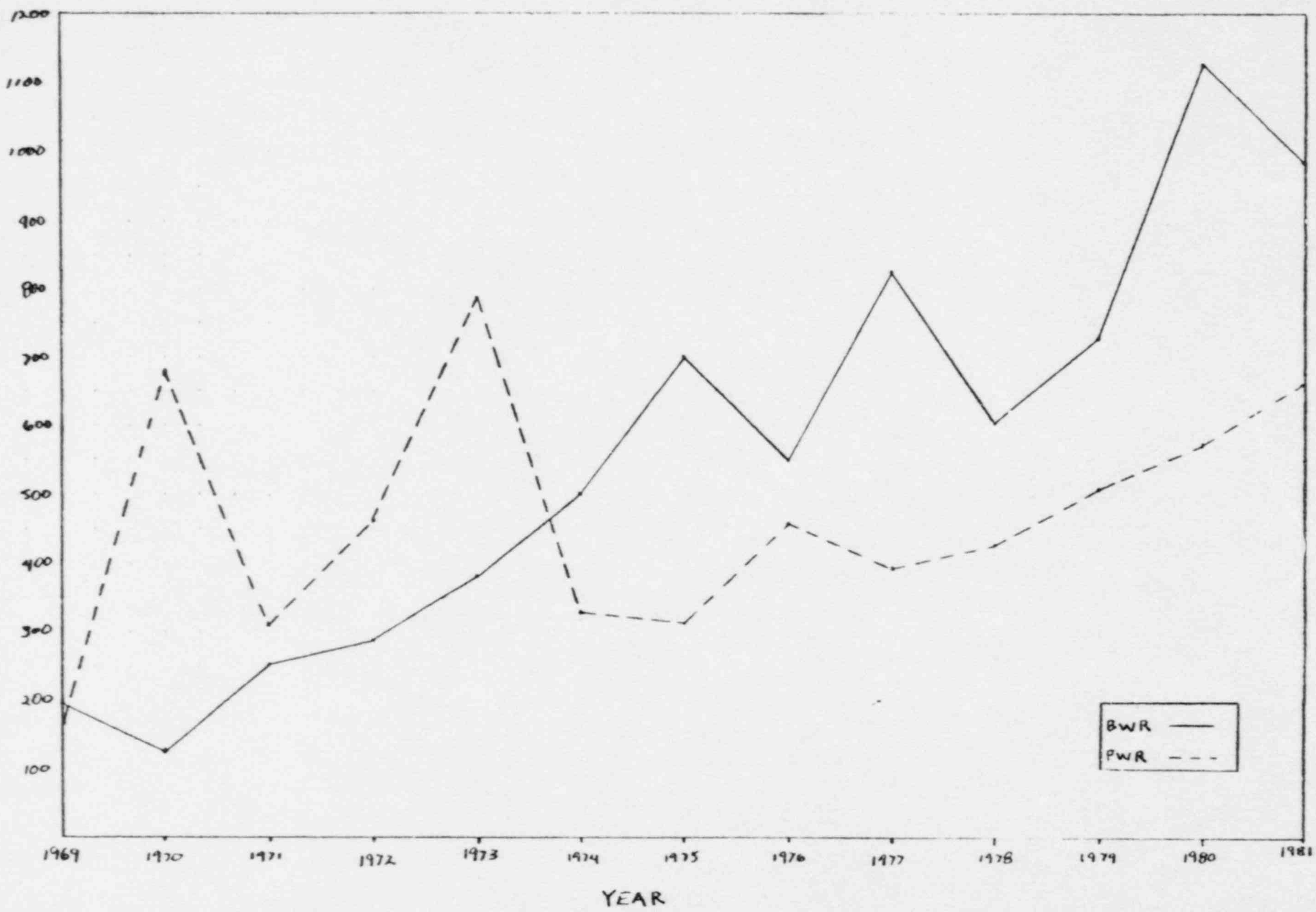


FIGURE 2

AVERAGE PERSON-REMS per YEAR
(BWR's and PWR's)



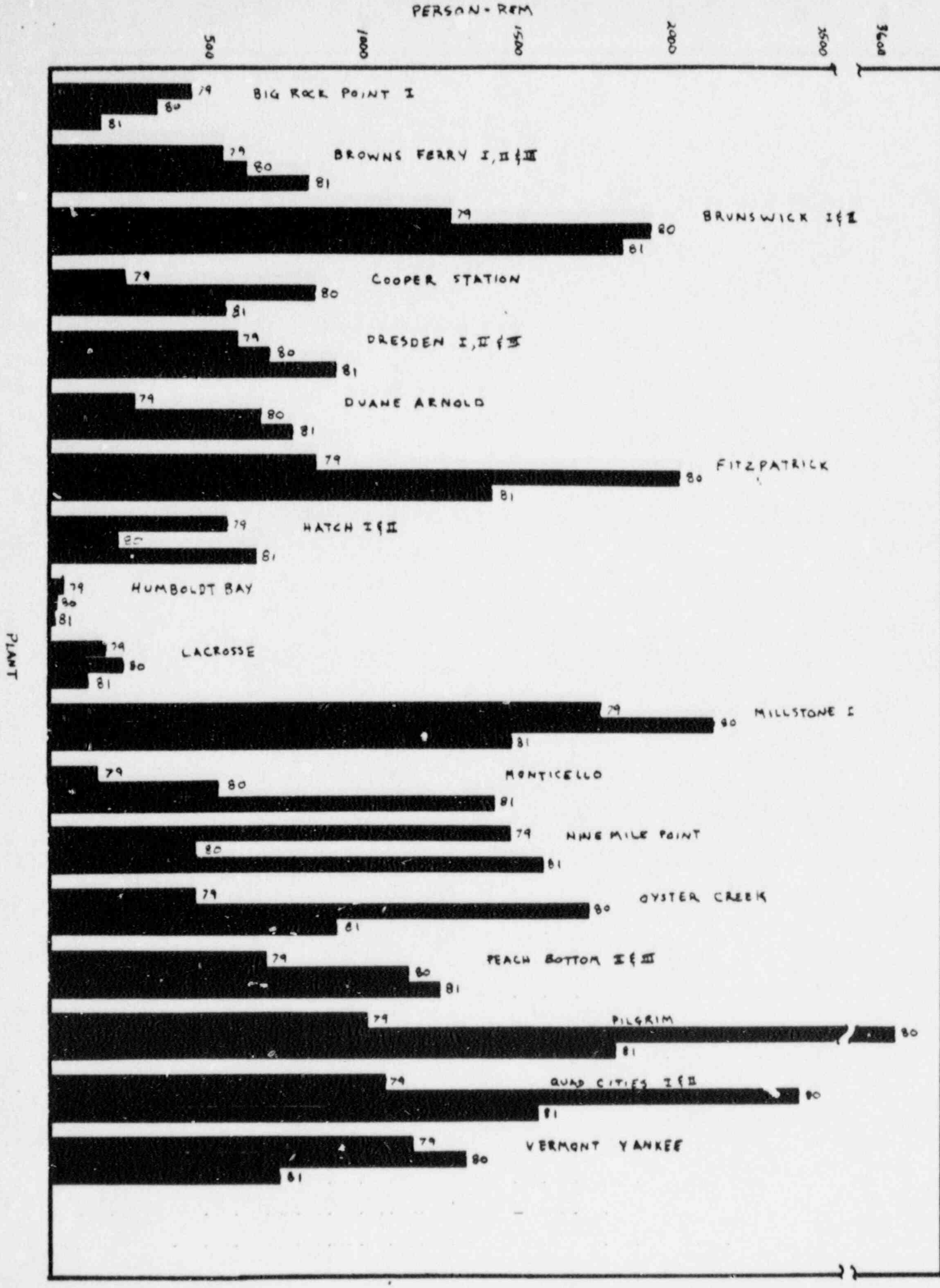


FIGURE 3 BWR PERSON-REM/UNIT 1979-1981

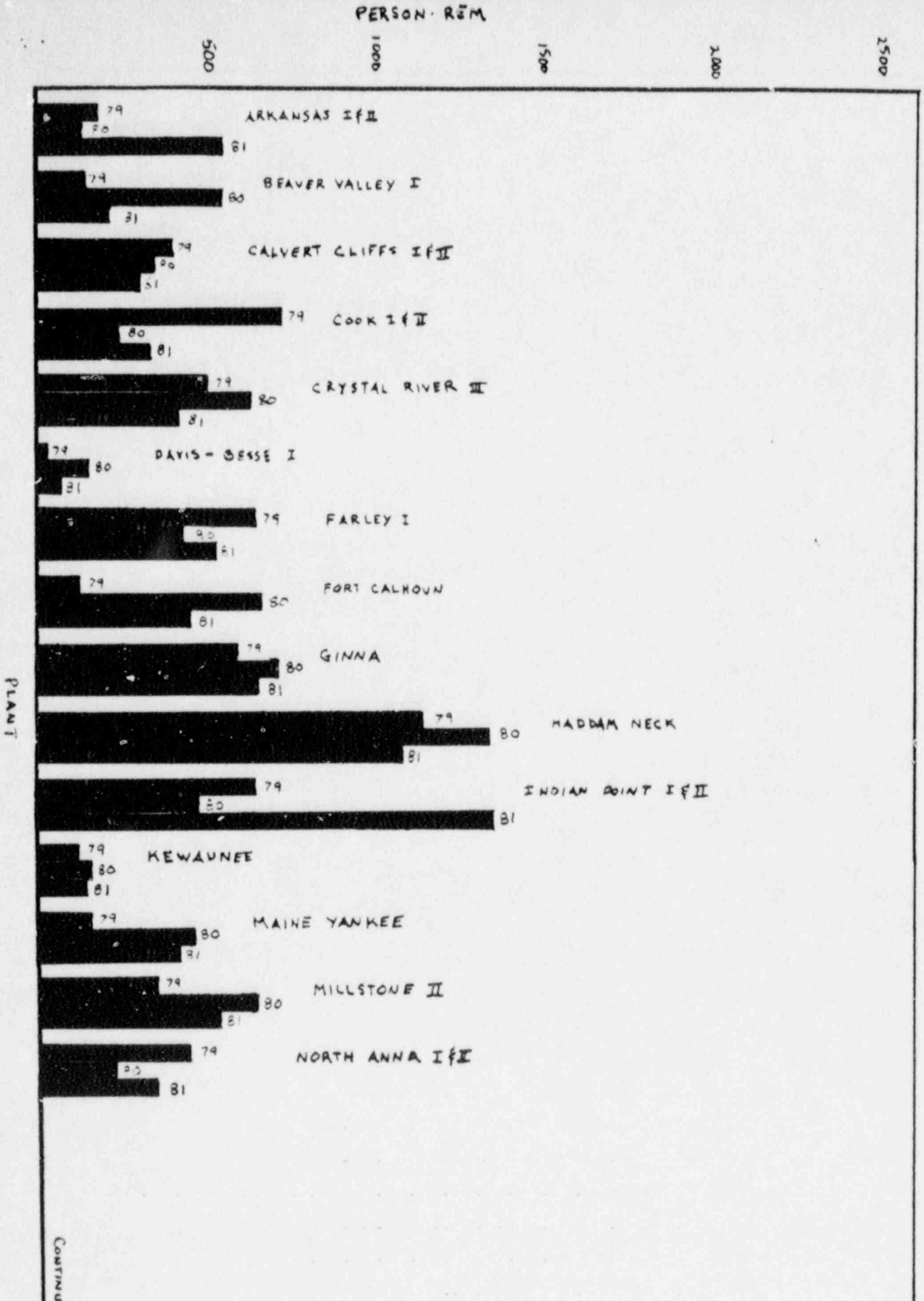


FIGURE 4a. PWR PERSON-REMS/UNIT 1979-1981

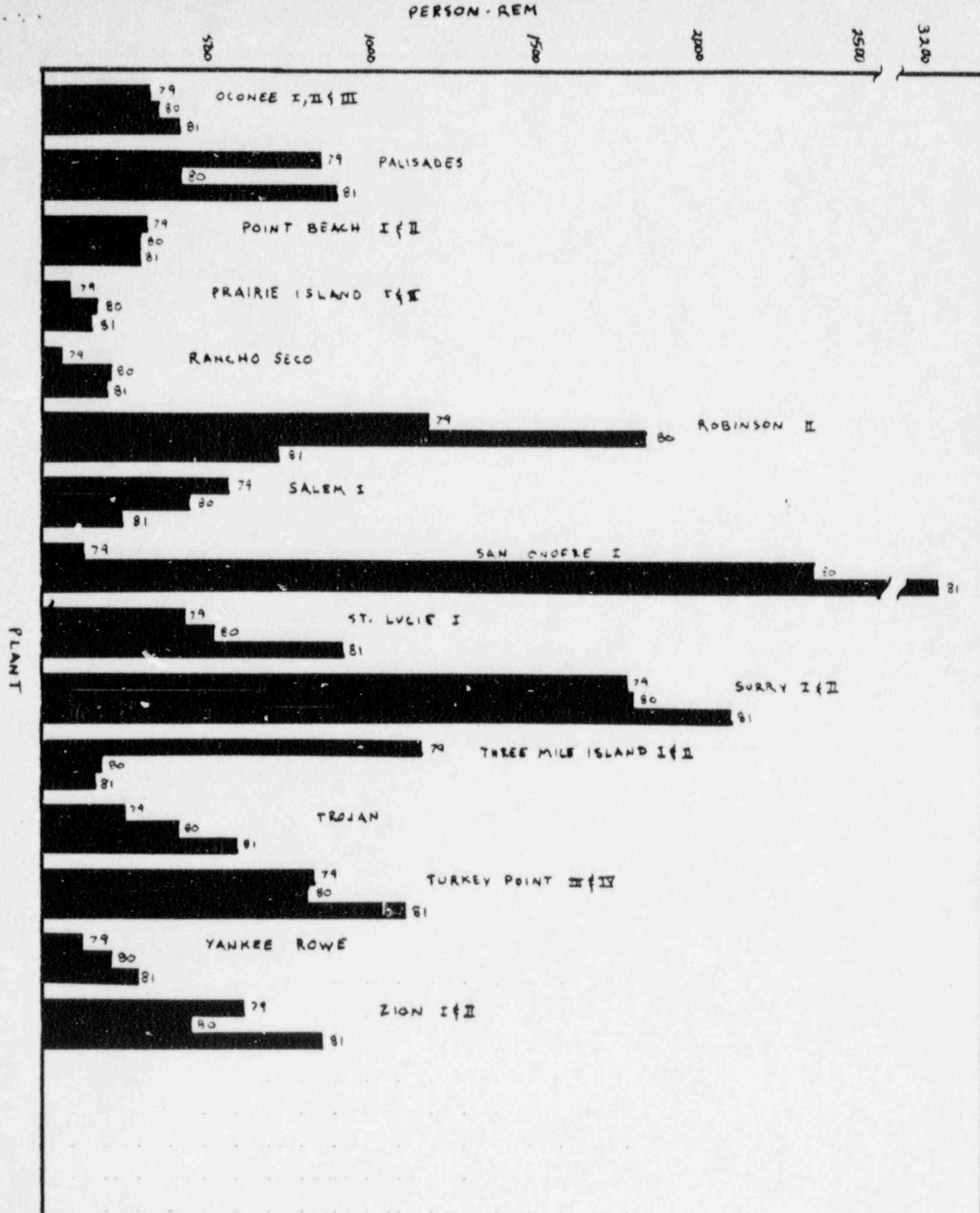


FIGURE 9b. PWR PERSON-REMS/UNIT 1979-1981

DISTRIBUTION
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RAB R/F
HRDenton

August 25, 1981

MEMORANDUM FOR: William J. Dircks
Executive Director for Operations

FROM: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

SUBJECT: INFORMATION PAPER ON OCCUPATIONAL RADIATION DOSES FOR 1980

The attached Commission Information Paper describes a recent finding that 1980 occupational radiation exposures at some BWR plants showed significant increases over previous years. The Commission has previously been interested in the gradual increase in such exposures. Recently, an ACRS subcommittee, in a meeting on July 24, 1981 on Fermi 2, developed an interest in possible occupational health impacts of mandated safety improvements. As is mentioned in the paper, the NRR staff is taking steps to include this consideration in evaluation of safety feature backfits.

Original Signed by
H. R. Denton

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Attachment:
Proposed Information Paper

cc: EGCase
RJMattson
WEKreger
DCollins
DEisenhut
TMurley
MLErnst
GKnighton
RVollmer

8109230172

OFFICE	DSI:RP	DSI	NRR			
SURNAME	WEKreger:csp	RJMattson	HRDenton			
DATE	8/20/81	8/ /81	8/25/81			

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

JUN 1 9 1981

MEMORANDUM FOR: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

THRU: Roger J. Mattson, Director
Division of Systems Integration, NRR

FROM: William E. Kreger, Assistant Director
for Radiation Protection, DSI

SUBJECT: UNUSUALLY HIGH OCCUPATIONAL DOSES REPORTED FOR POWER REACTORS OPERATING IN 1980

The purpose of this memorandum is to inform you further regarding some significant increases in total person-rem doses to reactor plant workers during calendar year 1980, relative to prior years.

RAB staff has completed a preliminary summary of the 1980 occupational radiation exposure data, submitted by licensees in accordance with 10 CFR Part 20.407 and R.G. 1.16. Enclosure "A", a C. Hinson to W. Kreger memo of May 28, 1981, summarizes the extent of the observed increases. You have received a copy of Enclosure "A".

Subsequent to our receipt of the data, the staff has had informal telephone conversations with plant radiation protection managers (RPM) at eight of the plants which experienced the largest observed increases (principally BWRs). In these conversations the RPM's have indicated that they feel that about 35% of total plant exposures during 1980 may have resulted from NRC-mandated activities, and that similar increases may be expected at a number of plants at which such NRC-mandated activities have not yet been completed. The activities they identified were seismic hanger inspections and changes, snubber corrections and masonry wall modifications that were directed by bulletins 79-02, 79-14 and 80-11. They also called out feedwater piping clad removal, and other torus and drywell changes.

In contrast to what we were told in the above conversations about how the work came about, James M. Smith, Jr. of General Electric Company, in a phone conversation with me characterized the major additional exposures at BWRs as being due to modification of the Mark I toruses, and replacing certain stainless steel components that showed intergranular stress corrosion cracking with 316 stainless steel. Although I&E bulletins have been issued regarding some of these matters, which would make them appear to be NRC mandated, Mr. Smith felt they were actually G.E. identified deficiencies and fixes. He believes that these special work efforts will result in significant future reduction of collective radiation exposure in those affected plants. He further indicated that the BWR 6's with Mark II containments will not have the problems indicated above, and should be able to operate at about 300 person-rems per year.

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As part of the conversation, the question of crud was discussed. Smith indicated that recirculating pipe dose rates seem to level off at 400 mrem/hr at 6 years or so, rather than continuing to rise indefinitely. He believes there is now enough information on how to control feedwater quality to control a potential continued buildup of crud levels. He stated that much of the dose-causing work discussed above was done at relatively low dose rates, but took many man hours (e.g., Millstone torus and suppression pool work took 42,000 man hours at about 9 mr/hr).

Smith projects that there will be about 2 years of these significant occupational radiation exposure increases at older BWRs but then doses will return to normal (i.e., at about 700 person-rems per year), or better.

Although our quantitative information on activities causing power plant exposures is limited, we have been concerned for some time about NRC-mandated activities that have contributed somewhat to the increased 1980 occupational doses. The process of backfitting safety requirements on operating plants has not necessarily considered competing risks, such as occupational radiation exposure, alongside the benefits associated with NRC-mandated actions. Even in establishing safety requirements at the CP and OL licensing stages, the staff has not had a uniformly effective mechanism for weighing increased safety (benefit) against possible increased exposure (cost) of such safety practices.

Enclosure "B" describes a staff developed risk comparison system which has been applied to requests by licensees for relief from requirements for inservice inspection and inservice testing. Such a system provides guidance for development of mechanisms to be more broadly applicable.

RAB plans to proceed, in conjunction with DL and DST, in considering further development of staff mechanisms to assure that risk-related considerations are taken into account when future NRC-mandated safety actions are contemplated. This staff activity will not take place at the expense of licensing commitments and schedules. However, we believe it to be an appropriate action related to operating reactors, since many of the new requirements were mandated as part of NUREGs 0600 and 0737.

William E. Kreger

William E. Kreger, Assistant Director
for Radiation Protection
Division of Systems Integration

Enclosures:
As Stated

cc: See next page

cc: E. Case
R. Mattson
T. Murley
M. Ernst
D. Collins
R. Alexander
E. Conti
J. Cunningham
R. Cunningham
R. Hartfield
B. Brooks
A. Roecklein
J. Joyner, Reg. I
A. Gibson, Reg. II
R. Gregor, Reg. III
G. Brown, Reg. IV
H. Book, Reg. V
C. Hinson
RPS Staff

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON D C 20555

MAY 2 8 1981

MEMORANDUM FOR: William E. Kreger, Assistant Director
for Radiation Protection, DSI

THRU: Douglas M. Collins, Leader
Radiation Protection Section, DSI

FROM: Charles S. Hinson
Radiological Assessment Branch, DSI

SUBJECT: PRELIMINARY LWR EXPOSURE DATA FOR 1980

Attached is a preliminary compilation and analysis of occupational radiation exposures at operating light water cooled nuclear power reactors (LWR's) for the year 1980. This information was derived from reports submitted to the United States Nuclear Regulatory Commission in accordance with Part 20.407 of Title 10, Chapter 1, Code of Federal Regulations (10 CFR Part 20.407) and Regulatory Guide 1.16.

One additional LWR completed a full year of commercial operation for the first time in 1980 (only LWR's that had been in commercial operation for at least one full year as of December 31, 1980, are included in this compilation). This single new operating plant, Hatch II (BWR), increased the number of plants included in this year's compilation to 68. This new unit is indicated in the compilation table by a (N).

The number of operating BWR's increased from 25 to 26 in this year's compilation. The yearly average exposure per reactor for BWR's in 1980 was 1136 person-rems. This represents a 55 percent increase over the 1979 average of 733 person-rems/reactor.

The yearly average exposure per reactor for the 42 operating PWR's in 1980 was 578 person-rems. This represents a 13 percent increase over the 1979 average of 510 person-rems/reactor.

The overall average exposure per reactor for all LWR's increased 33 percent from 593 person-rems in 1979 to 791 person-rems in 1980. The attached exposure compilation table include a breakdown of the person-rems received at each of the LWR's included in the above compilation for 1980. This table lists the exposure figures which were submitted by the licensees in response to the requirements of 10 CFR Part 20.407 and Regulatory Guide 1.16 (R.G. 1.16 data shown in parenthesis). The data quoted above and used in the attached figures is from the 10 CFR Part 20.407 data.

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PLANT NAME	PLANT TYPE	AGE	EXPOSURE 20.407 (1.76)
Arkansas I	P	6	342 (263)
Beaver Valley I	P	4	553 (496)
Big Rock Point	B	12	254 (368)
Brown's Ferry I, II, III	B	6 5 [illegible]	1026 (1266)
Brunswick I, II	B	5 3	3370 (3664)
Calvert Cliffs I, II	P	5 3	677 (640)
Cook I, II	P	5 2	493 (450)
Cooper Station	B	6	859 (820)
Crystal River III	P	3	625 (598)
Davis Besse I	P	3	154 (279)
Dresden I II III	B	20 10 9	2105 (2025)
Duane Arnold	B	5	471 (414)
Farley I	P	3	435 (377)
Fitzpatrick	B	5	2040 (2135)
Ft. Calhoun	P	7	668 (687)
Ginna	P	10	708 (714)
Haddam Neck (Connecticut Yankee)	P	12	1353 (1292)
Hatch I + II (N)	B	5 1	449 (550)
Humboldt Bay	B	17	22 (15)
Indian Point I, II	P	18 7	971 (939)
Indian Point III	P	4	308 ( )
Kewaunee	P	6	165 (146)
La Crosse	B	11	218 (215)
Maine Yankee	P	8	462 (555)
Millstone I	B	9	2158 (2075)
Millstone II	P	5	636 (612)
Monticello	B	9	531 (459)
Nine Mile Point I	B	11	591 (472)
North Anna I	P	2	218 (322)
Oconee I, II, III	P	7 6	1055 (1119)
Oyster Creek	B	11	1733 (1807)

PLANT NAME	PLANT TYPE	AGE	EXPOSURE
Palisades	P	9	434 (3[illegible]
Peach Bottom II, III	B	6 [illegible]	2302 (216[illegible]
Pilgrim	B	[illegible]	3626 (217[illegible]
Point Beach I, II	P	10 8	598 (55[illegible]
Prairie Island I, II	P	7 6	353 (32[illegible]
Quad Cities I, II	B	7 7	4838 ([illegible]
Rancho Seco	P	5	412 (24[illegible]
Robinson II	P	9	1852 (1762
Salem I	P	3	449 (400
San Onofre I	P	12	2387 (2241
St. Lucie I	P	4	532 (495)
Surry I, II	P	8 7	3836 (3665)
Three Mile Island I, II	P	6 2	395 (510)
Trojan	P	4	421 (448)
Turkey Point III, IV	P	8 7	1651 (1819)
Vermont Yankee	B	8	1338 (1309)
Yankee Rowe	P	14	213 (179)
Zion I, II	P	7 6	920 (864)
Fort St. Vrain	HTGR	2	3 ( )

Reactor Type	# of Reactors	Total Person-Rems	Avg. Person-Rems Per Reactor
BWR	26	29531	1136
PWR	42	24266	578
LWR	68	53797	791

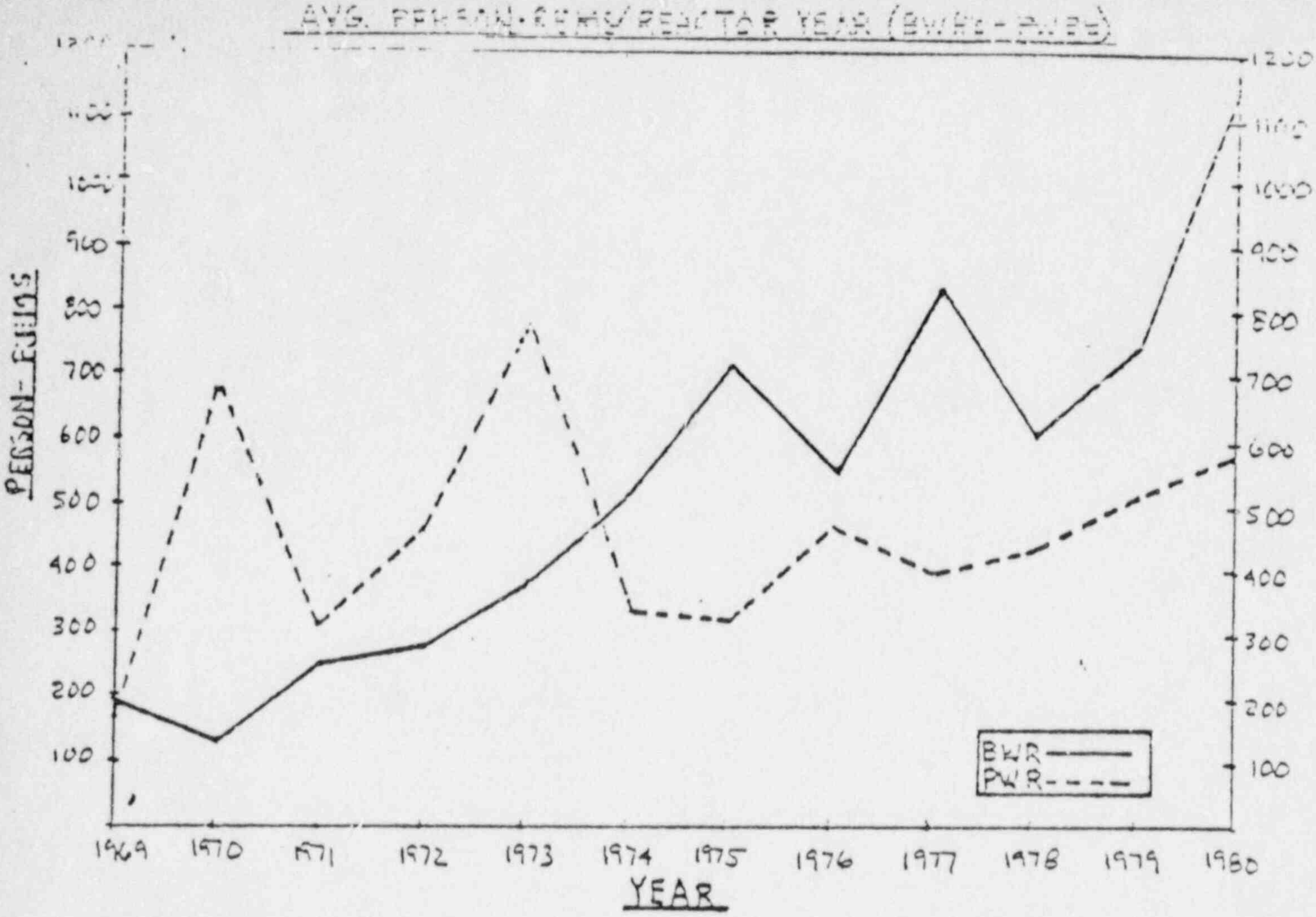

AVG. PERSON-REMS/REACTOR YEAR (BWRs-PWRs)
PERSON-REMS
YEAR
BWR
PWR
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980

FIGURE 1

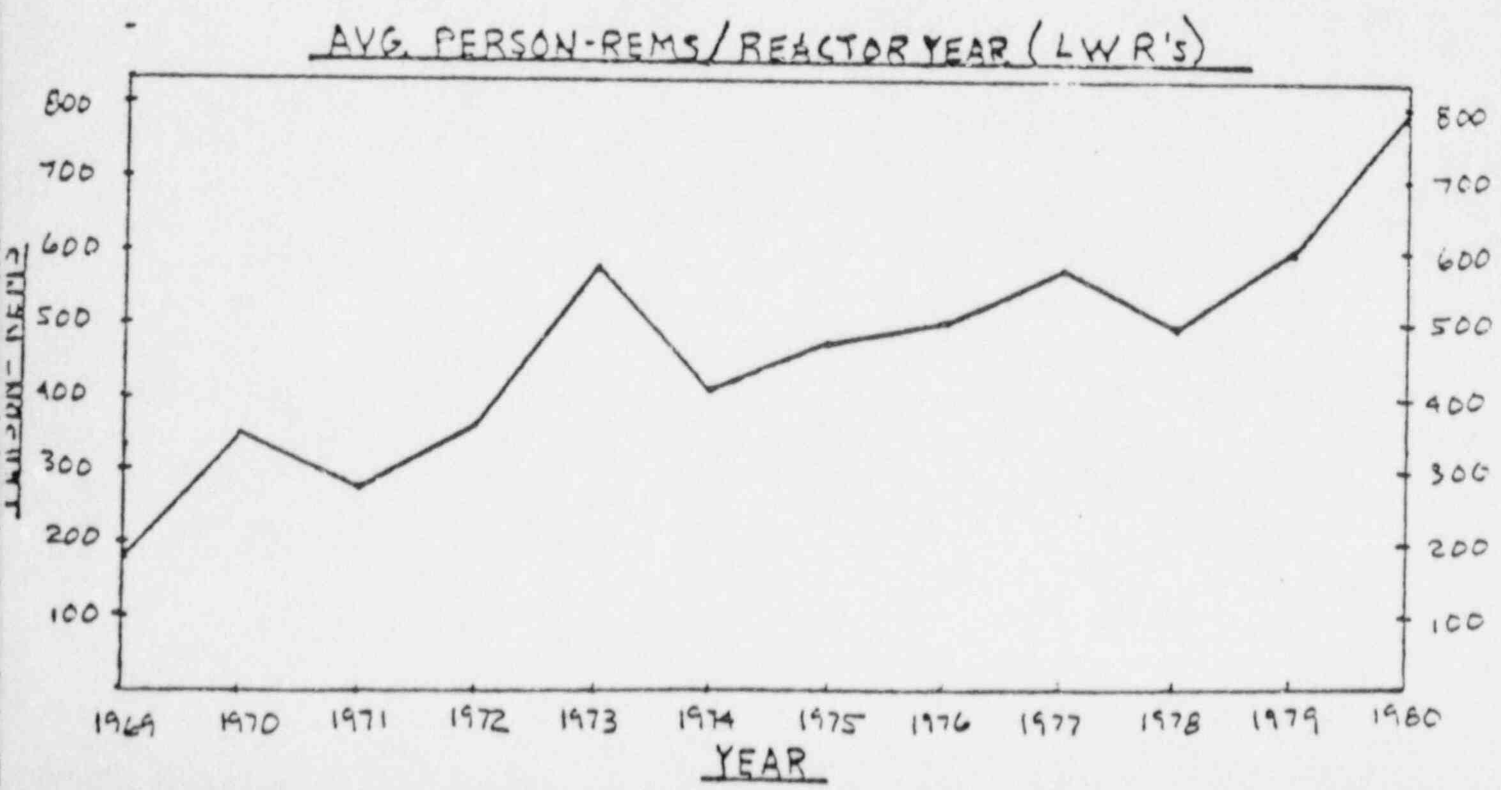
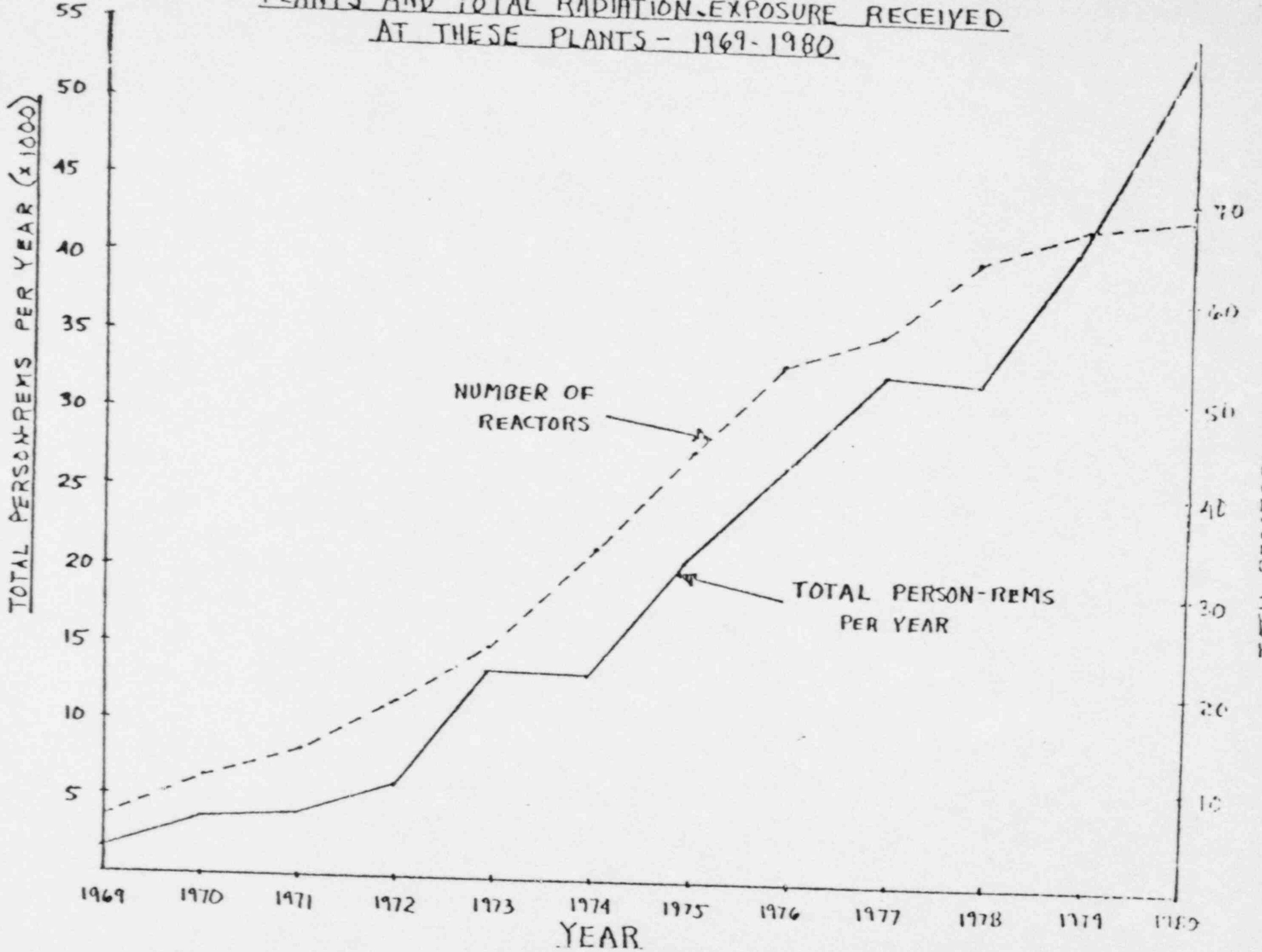

AVG. PERSON-REMS/REACTOR YEAR (LWR's)
YEAR
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980

FIGURE 2

TOTAL NUMBER OF OPERATING COMMERCIAL NUCLEAR PLANTS AND TOTAL RADIATION EXPOSURE RECEIVED AT THESE PLANTS - 1969-1980



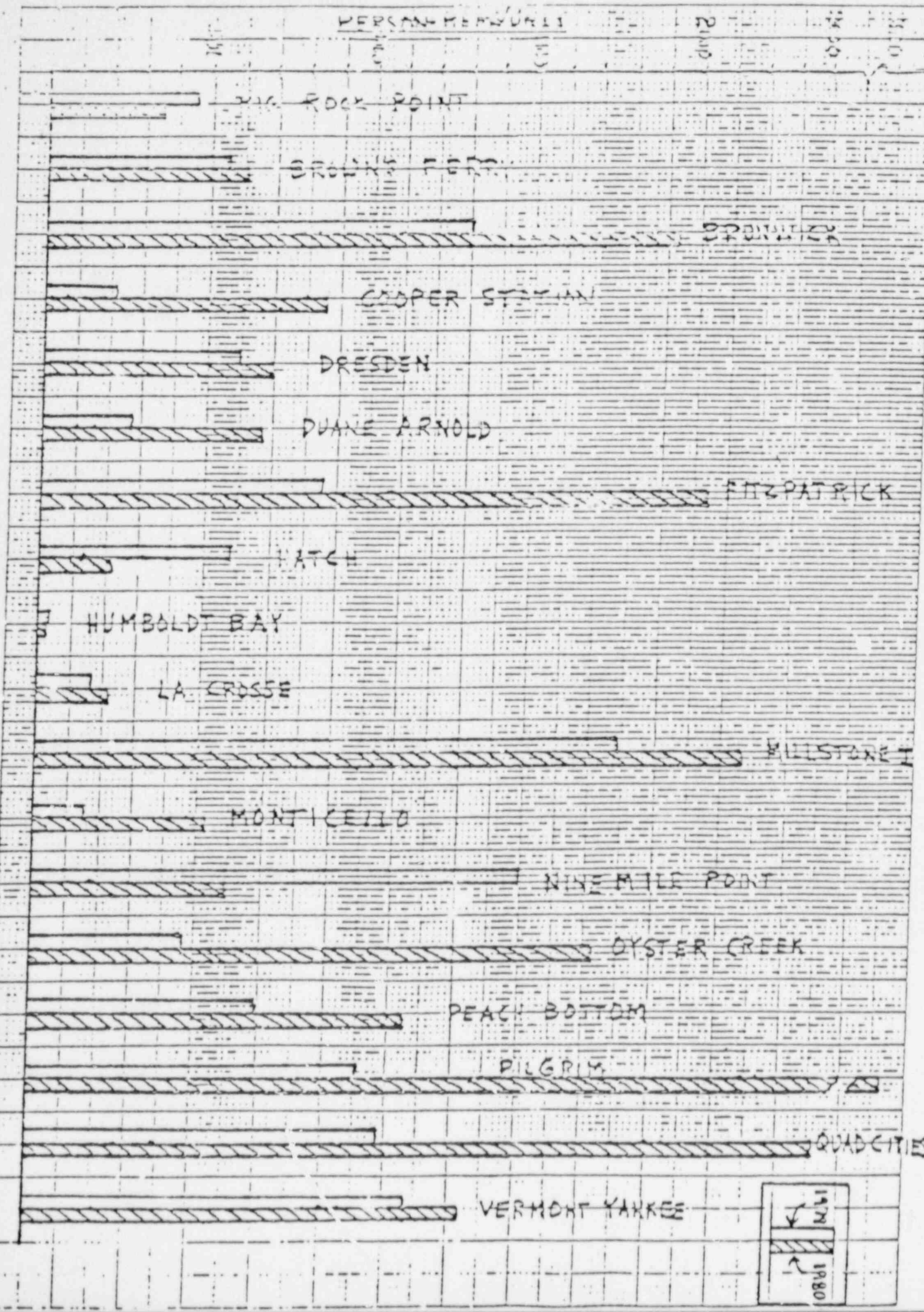


FIGURE 3a
BWR's PERSON-REM/UNIT 1979-1980

46 1320

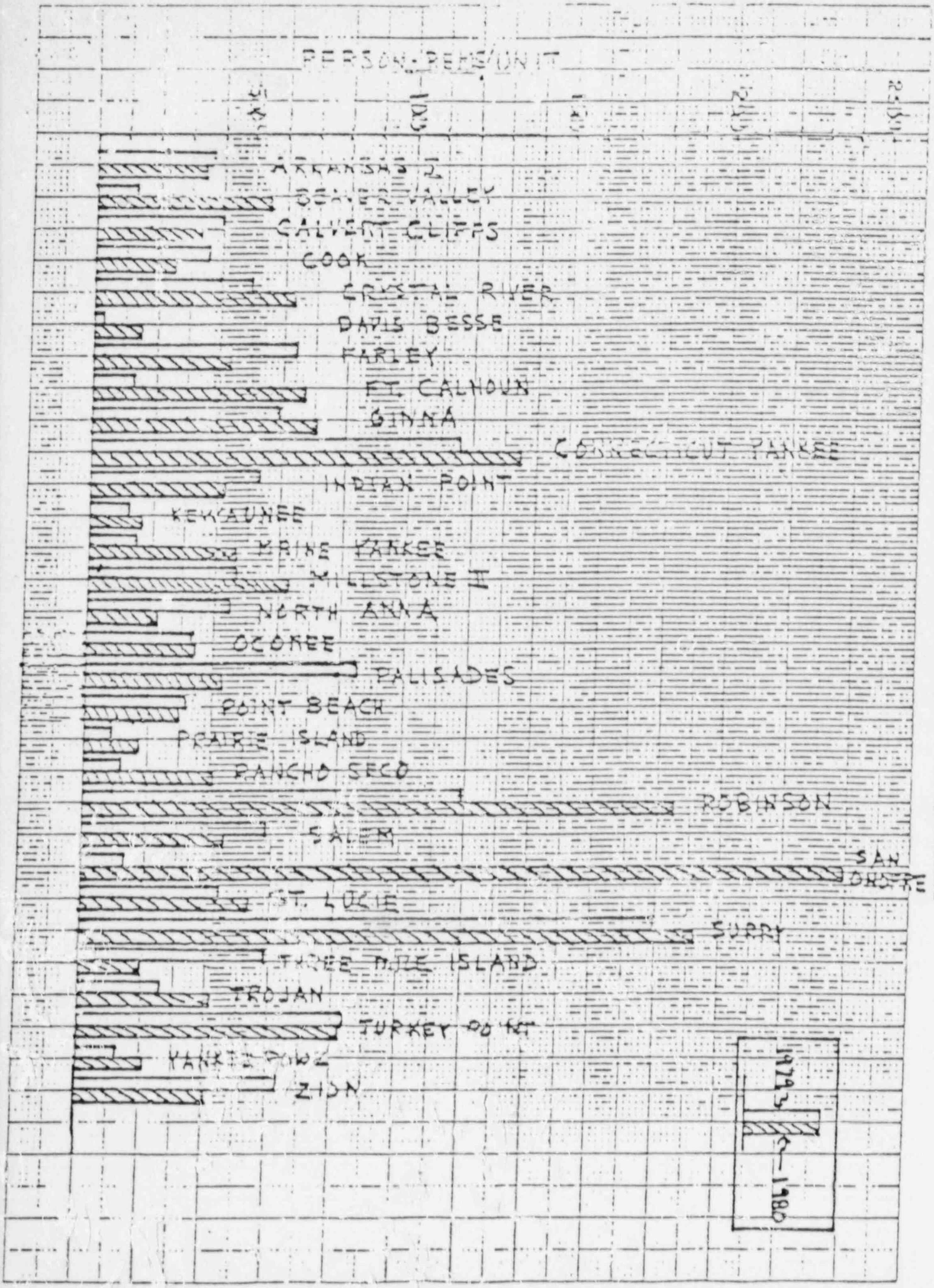


FIGURE 3b

PWR's - PERSON-REMS/UNIT 1979-1980

46 1320

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

OCT 2 4 1984

MEMORANDUM FOR: Daniel R. Muller, Assistant Director for Radiation Protection, DSI

FROM: Frank J. Congel, Chief
Radiological Assessment Branch, DSI

SUBJECT: LWR OCCUPATIONAL DOSE DATA FOR 1982

Attached is a compilation and analysis of occupational radiation doses reported from 74 light water cooled nuclear reactors (LWRs) for the year 1982. The information in this memorandum was derived from reports submitted to the Commission in accordance with 10 CFR Part 20.407. Four pressurized water reactor units, Farley 2, McGuire 1, Salem 2 and Sequoyah 1, completed their first full year of commercial operation in 1982 and are included in this year's summary for the first time (indicated in Table 1 by an (N)). In addition, this summary includes four units (Dresden 1, Humboldt Bay, Indian Point 1, and Three Mile Island 2) that are currently shutdown for an indefinite period of time. These units have been retained in this summary since they are still licensed and dose is still accumulated to maintain them.

The total collective dose reported for 1982 was 52,190 person-rems, a decrease of 3.6 percent from the 1981 figure of 54,142 person-rems. This total gives an average of 705 person-rems per-unit, which is nearly eight percent lower than the 773 person-rems per unit reported for 1981. This is also the second year in a row in which the average person-rems per reactor has shown a decrease from the 1980 high of 791 person-rems per unit.

In 1982 the average dose for PWR units was 578 person-rems, an 11.3 percent decrease from the 1981 average of 652 person-rems. The number of PWRs in this year's compilation increased from 44 to 48. The 1982 average boiling water reactor (BWR) dose of 940 person-rems per unit is a 4 percent decrease from the 1981 average of 980 person-rems. The number of BWRs remained the same in 1982 at 26. The attached exposure compilation table (Table 1) presents a breakdown of the person-rems received at each of the LWRs which had completed at least one full year of commercial operation by the end of 1982. The exposure figures listed in Table 1 were derived from data submitted by the licensees in response to the requirements of 10 CFR Part 20.407 and plant technical specifications (the plant technical specifications require that only personnel receiving greater than 100 mrem be listed--these data are shown in parentheses in Table 1). The figures quoted above and used in the attached figures are from the 10 CFR Part 20.407 data.

Figure 1 shows the total average yearly person-rem figures for BWRs, PWRs, and LWRs for the years 1969-1982. For the ninth consecutive year, the average exposure for BWRs has remained higher than the average yearly PWR

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exposure. Figure 2 shows the total number of operating reactors and the total collective LWR dose per year plotted for the years 1969-1982. Figures 3, 4a, and 4b provide a graphic comparision of the annual occupational exposures per unit, for each plant, for the three year period from 1980 through 1982.

This information was compiled by C. Hinson, RPS/RAB.

Frank J. Congel

Frank J. Congel, Chief
Radiological Assessment Branch
Division of Systems Integration

Enclosure
As Stated

cc: w/attachment
H. Denton
R. Bernero
O. Lynch
R. Alexander
C. Conti
M. Parsont
R. Cunningham
W. Pasciak, Reg. I
M. Shambacky, Reg. I
C. Jenkins, Reg. II
R. Greger, Reg. III
B. Murray, Reg. IV
H. Book, Reg. V
R. Hartfield
R. Brooks
A. Roecklein
C. Hinson
D. Eisenhut
J. Cunningham
J. Wigginton

TABLE 1

1982 EXPOSURE DATA

PLANT NAME	Type	Age	20.407 (Tech. Spec. data)
Arkansas I, II	P	8, 2	803 (670)
Beaver Valley I	P	6	599 (565)
Big Rock Point	B	14	328 (301)
Brown's Ferry I, II, III	B	8, 7, 5	2220 (1730)
Brunswick I, II	B	7, 5	3792 (3711)
Calvert Cliffs I, II	P	7, 5	1057 (941)
Cook I, II	P	7, 4	699 (643)
Cooper Station	B	8	542 (506)
Crystal River III	P	5	177 (142)
Davis-Besse I	P	5	164 (263)
Dresden I, II, III	B	22, 12, 11	2923 (2852)
Duane Arnold	B	7	229 (298)
Farley I, II (N)	P	5, 1	484 (446)
Fitzpatrick	B	7	1190 (1189)
Fort Calhoun I	P	9	217 (140)
Ginna	P	12	1140 (1108)
Haddam Neck (Conn. Yankee)	P	14	126 (122)
Hatch I, II	B	7, 3	1460 (1282)
Humboldt Bay	B	19	19 (15)
Indian Pt. I, II	P	20, 9	1635 (1754)
Indian Pt. III	P	6	1226 (1430)
Kewaunee	P	8	101 (89)
LaCrosse	B	13	205 (202)
Maine Yankee	P	10	619 (616)
McGuire I (N)	P	1	169 (336)
Millstone I	B	11	929 (936)
Millstone II	P	7	1413 (1422)
Monticello	B	11	993 (941)
Nine Mile Pt.	B	13	1264 (1487)
North Anna I, II	P	4, 2	1915 (2024)
Oconee I, II, III	P	9, 8, 8	1792 (2068)

PLANT NAME	Type	Age	20.407 (
Oyster Creek	B	13	865 (
Palisades	P	11	330 (
Peach Bottom II, III	B	8, 8	1977 (1
Pilgrim I	B	10	1539 (11
Point Beach I, II	P	12, 10	609 (5
Prairie Island I, II	P	9, 8	229 (2
Quad Cities I, II	B	9, 9	3757 (3
Rancho Seco I	P	7	337 (3
Robinson II	P	11	1426 (13
Salem I, II (N)	P	5, 1	1203 (10
San Onofre I	P	14	832 (7
Sequoyah I (N)	P	1	570 (2
St. Lucie I	P	6	272 (2
Surry I, II	P	10, 9	1490 (13
Three Mile Island I, II	P	8, 4	1004 (9
Trojan	P	6	419 (35
Turkey Point III + IV	P	8, 9	2119 (279
Vermont Yankee	B	10	205 (2
Yankee Rowe	P	16	474 (46
Zion	P	9, 8	2103 (195

(N) ≡ Newly counted plant in 1982

Reactor Type	#	20.407 Total Person-Rem	20.407 Average Person-Rem/Reac
PWR	48	27753	578
BWR	26	24437	940
LWR	74	52190	705

FIGURE 1

COMMERCIAL LIGHT WATER COOLED REACTORS
1969-1982

OCCUPATIONAL RADIATION DOSES AT NUCLEAR POWER-PLANTS

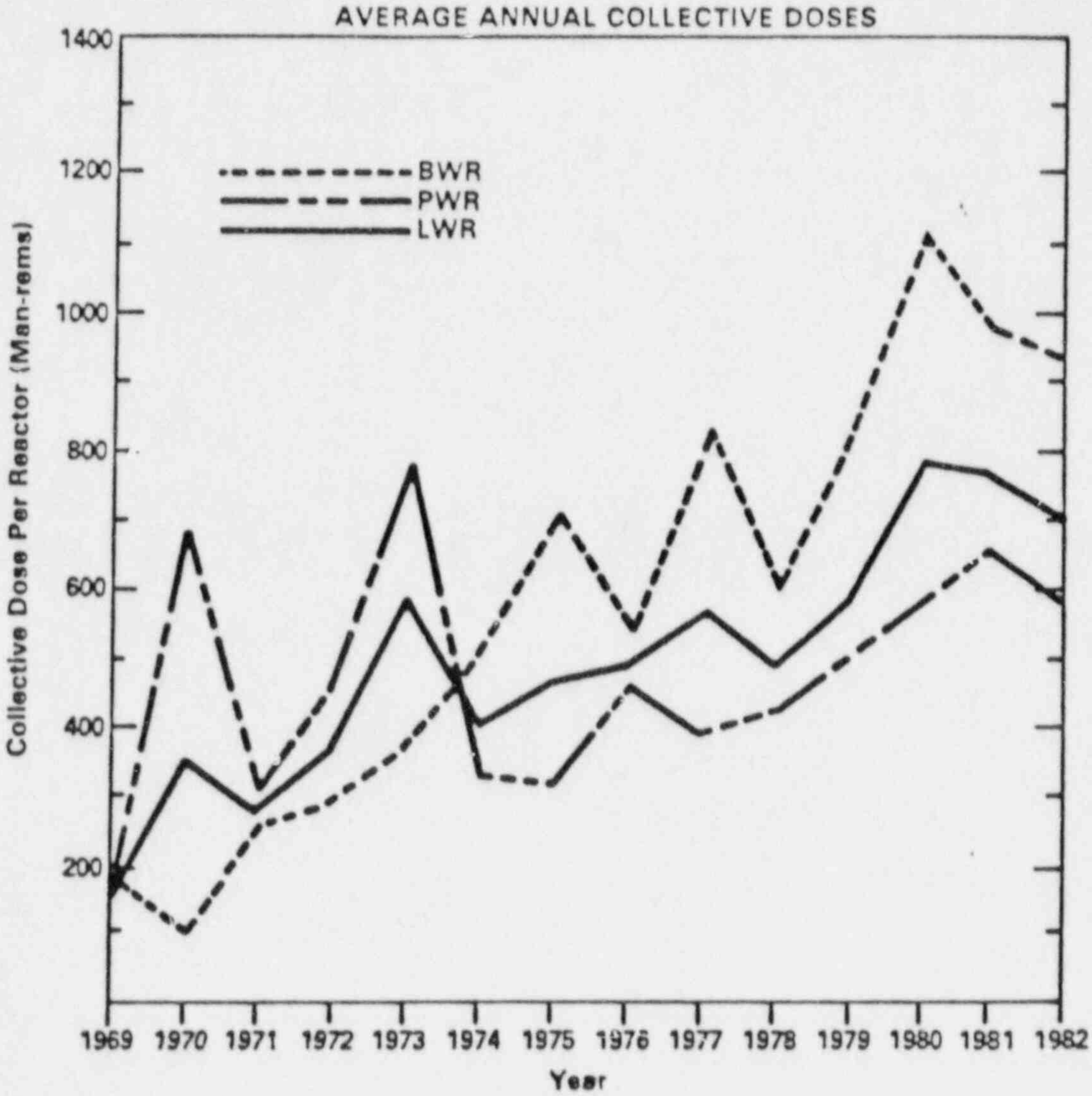
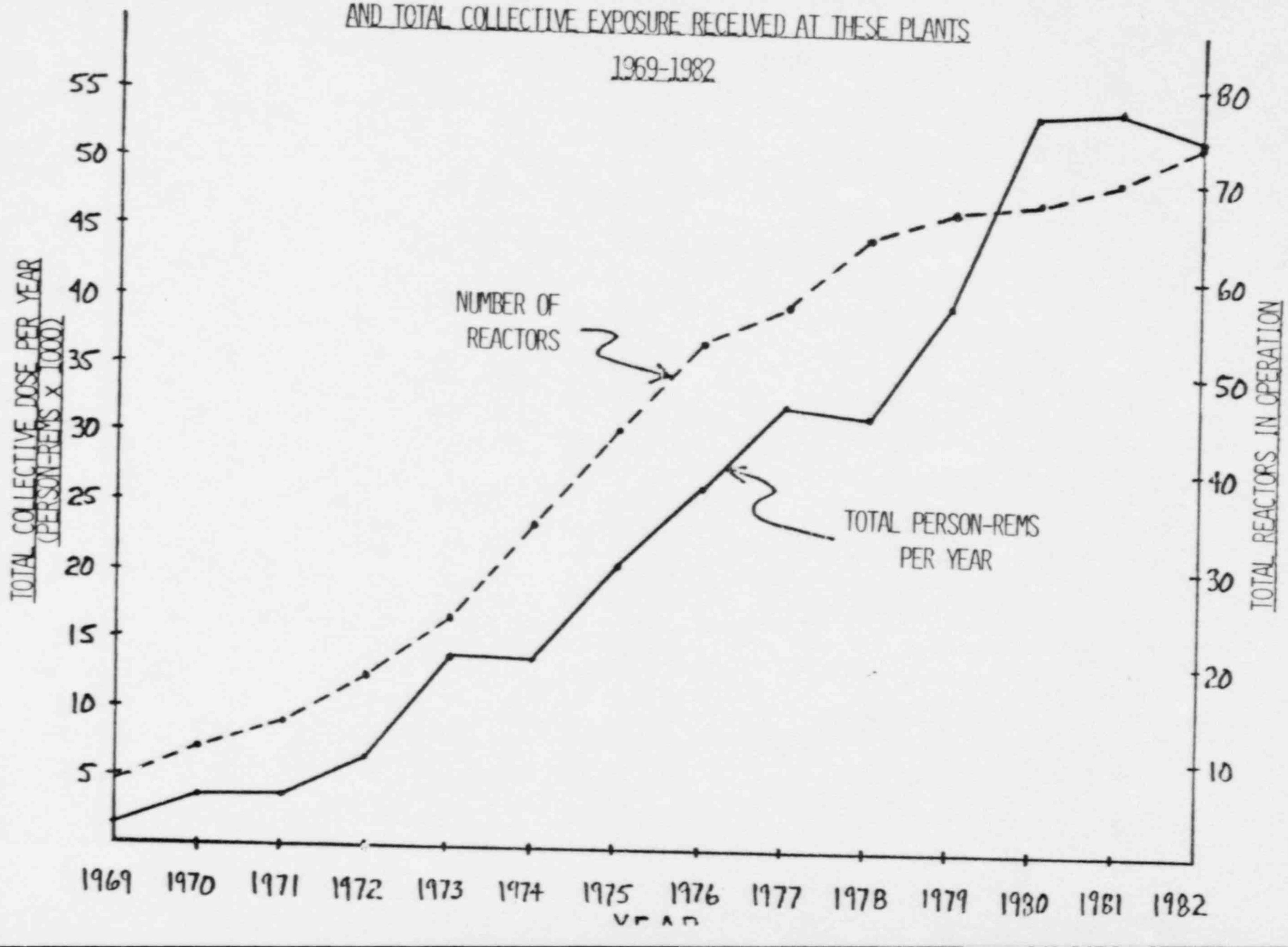


FIGURE 2

TOTAL NUMBER OF COMMERCIAL OPERATING NUCLEAR PLANTS
AND TOTAL COLLECTIVE EXPOSURE RECEIVED AT THESE PLANTS
1969-1982



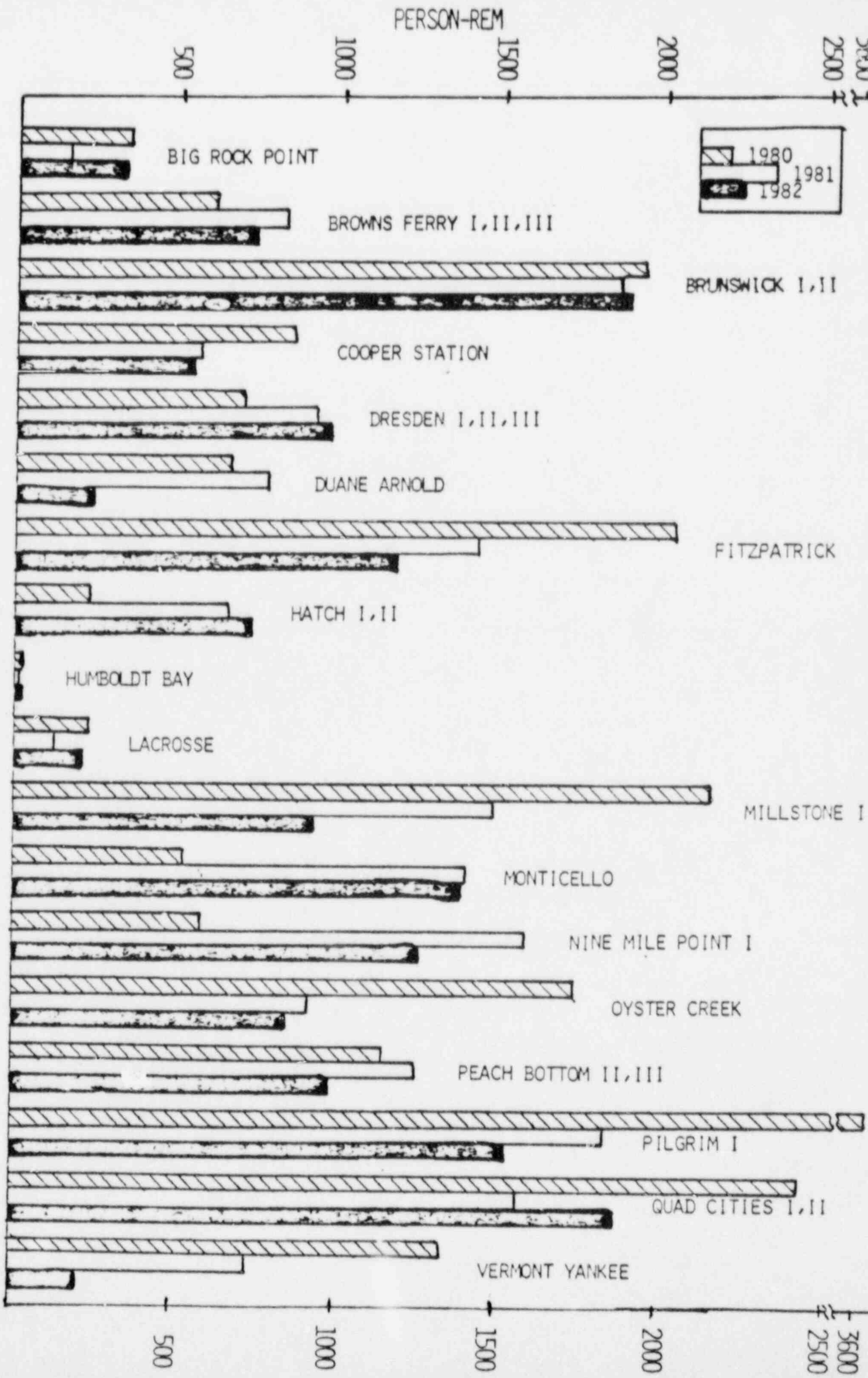
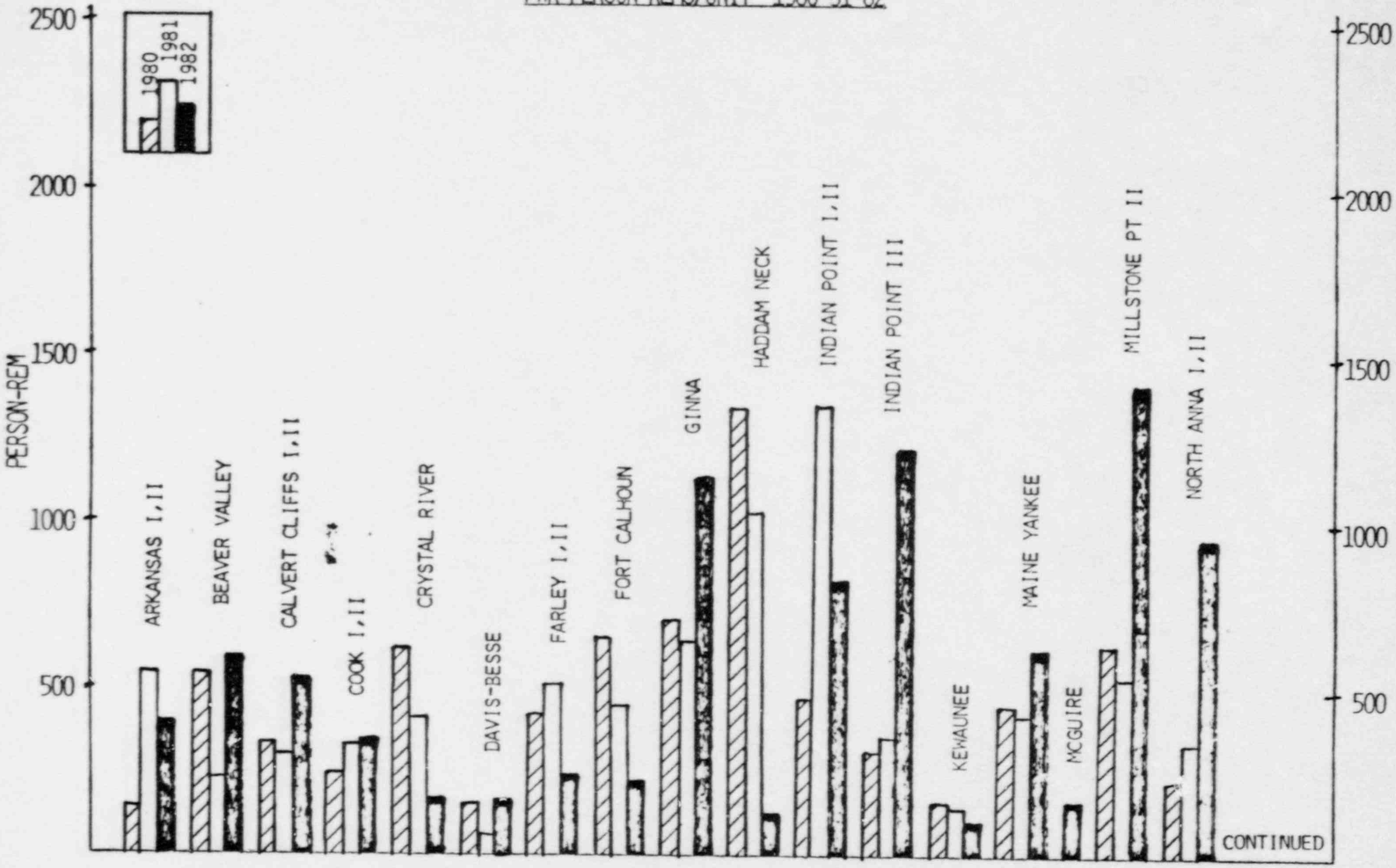


FIGURE 3

BWR PERSON-REMS/UNIT 1980-81-82

FIGURE 4A

PWR PERSON-REMS/UNIT 1980-81-82



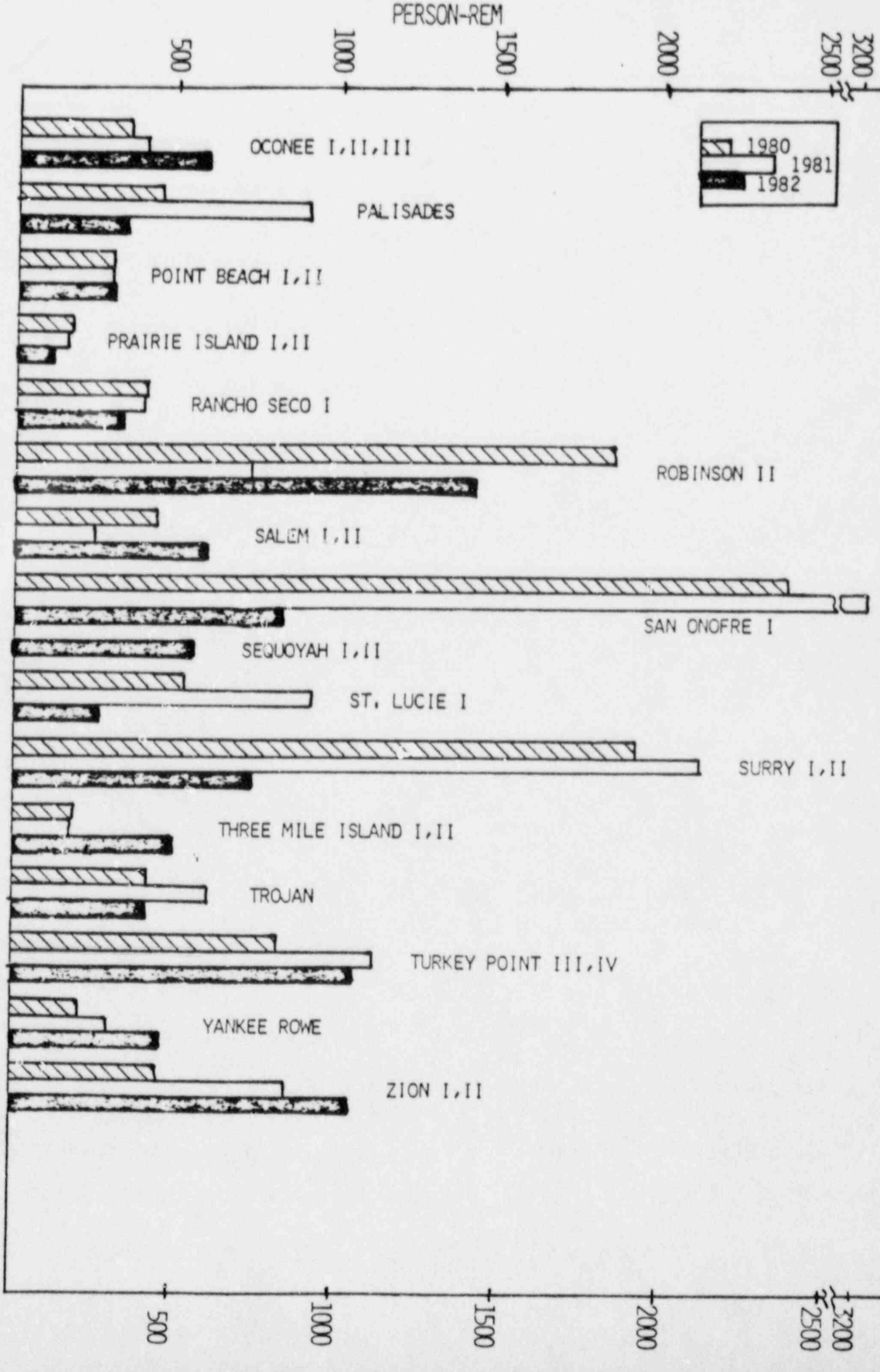


FIGURE 4B

PWR PERSON-REMS/UNIT 1980-81-82

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

DEC 1 2 1984

MEMORANDUM FOR Daniel R. Muller, Assistant Director
for Radiation Protection, DSI

FROM: Frank J. Congel, Chief
Radiological Assessment Branch, DSI

SUBJECT: LWR OCCUPATIONAL DOSE DATA FOR 1983

Attached is a compilation and analysis of occupational radiation doses reported from 75 light water moderated nuclear reactors (LWRs) for the year 1983. The information in this memorandum was derived from reports submitted to the Commission in accordance with 10 CFR Part 20.407. Only one pressurized water reactor (PWR), Sequoyah 2, completed its first full year of commercial operation in 1983 and is included in this year's summary for the first time (indicated in Table 1 by an (N)). In addition, this summary includes four units (Dresden 1, Humboldt Bay, Indian Point 1, and Three Mile Island 2) that are currently shutdown for an indefinite period of time. These units have been retained in this summary since they are still licensed and dose is still accumulated to maintain them.

The total collective dose for all LWRs in 1983 was 56,471 person-rems. This number is eight percent higher than the 1982 total of 52,190 person-rems, and is the highest annual LWR total dose to date (the previous high total was 54,142 person-rems in 1981). The average dose per unit for LWRs in 1983 was 753 person-rems per unit, well above the 1982 average of 705 person-rems per unit, but still below the highest recorded average of 791 person-rems per unit in 1980. The increase in the average dose per unit in 1983 ends a two year decline of this value for LWRs.

In 1983 the average dose for PWR units was 592 person-rems, a two percent increase from the 1982 average of 578 person-rems. The number of PWRs in this year's compilation increased from 48 to 49. The average boiling water reactor (BWR) dose of 1,056 person-rems per unit in 1983 was 12 percent higher than the 1982 BWR average of 940 person-rems. The number of BWRs remained the same in 1983 at 26 units. The attached exposure compilation table (Table 1) presents a breakdown of the person-rems received at each of the LWRs which had completed at least one full year of commercial operation by the end of 1983. The exposure figures listed in Table 1 were derived from data submitted by the licensees in response to the requirements of 10 CFR Part 20.407 and plant technical specifications (the plant technical specifications require that only personnel receiving greater than 100 mrem be listed--these data are shown in parentheses in Table 1). The

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figures quoted above and used in the attached figures are from the 10 CFR Part 20.407 data.

Figure 1 shows the total average yearly person-rem figures for BWRs, PWRs, and LWRs for the years 1969-1983. For the tenth consecutive year, the average exposure for BWRs has remained higher than the average yearly PWR exposure. Figure 2 shows the total number of operating reactors and the total collective LWR dose per year plotted for the years 1969-1983. Figure 3 provides a graphic comparison of the annual occupational exposure per unit, for each BWR, for the three year period from 1981 to 1983. Four BWR units--Brunswick I and II, Oyster Creek, and Vermont Yankee--had doses which exceeded 1500 person-rems in 1983. Although these four units represented only 15 percent of the BWRs operating in 1983, they contributed over one fourth (7259 person-rems) of the total BWR exposure in 1983. Major maintenance jobs which were large contributors to BWR doses in 1983 included inspection and repair of primary piping and pipe welds,and Mark I torus modifications.

Figures 4a and 4b provide a comparison of occupational exposures per unit for PWRs for the three year period from 1981-1983. In 1983, seven PWR units--Haddam Neck, Millstone Pt. II, Surry I and II, St. Lucie I, and Turkey Pt. III and IV--all had doses which exceeded 1200 person-rems. These seven units, while comprising only 14 percent of the PWRs operating in 1983, contributed over 35 percent (10370 person-rems) of the total PWR exposure in 1983. Steam generator maintenance and repair continued to be a major source of personnel exposure at PWRs in 1983. Another major source of exposures at PWRs was maintenance on reactor vessel internals, such as core barrel and core thermal shield repair, and feedwater nozzle replacement.

This information was compiled by C. Hinson, RPS/RAB.

Frank J. Congel

Frank J. Congel, Chief
Radiological Assessment Branch
Division of Systems Integration

Enclosure
As Stated

cc: See next page.

TABLE 1

1983 EXPOSURE DATA

PLANT NAME	Type	Age	Person-Rems 20.407 (Tech Spec Data)
Arkansas I, II	P	9, 3	1397 (1220)
Beaver Valley I	P	7	772 (677)
Big Rock Point	B	15	263 (248)
Brown's Ferry I, II, III	B	9, 8, 6	3363 (2564)
Brunswick I, II	B	8, 6	3475 (3492)
Calvert Cliffs I, II	P	8, 6	668 (590)
Cook I, II	P	8, 5	658 (566)
Cooper Station	B	9	1293 (1274)
Crystal River III	P	6	552 (552)
Davis-Besse I	P	6	80 (145)
Dresden I, II, III	B	23, 13, 12	3582 (3491)
Duane Arnold	B	8	1135 (1319)
Farley I, II	P	6, 2	1021 (956)
Fitzpatrick	B	8	1090 (1090)
Fort Calhoun I	P	10	433 (459)
Ginna	P	13	855 (961)
Haddam Neck (Conn. Yankee)	P	15	1384 (1423)
Hatch I, II	B	8, 4	1299 (1099)
Humboldt Bay	B	20	17 (13)
Indian Pt. I, II	P	21, 10	486 (483)
Indian Pt. III	P	7	607 (588)
Kewaunee	P	9	165 (165)
LaCrosse	B	14	313 (315)
Maine Yankee	P	11	164 (147)
McGuire I	P	2	521 (563)
Millstone Pt. I	B	12	244 (269)
Millstone Pt. II	P	8	1881 (2077)
Monticello	B	12	121 (103)
Nine Mile Pt	B	14	860 (875)
North Anna I, II	P	5, 3	665 (653)
Oconee I, II, III	P	10, 9, [illegible]	1207 (1285)
Oyster Creek	B	14	2257 (2304)
Palisades	P	12	977 (911)
Peach Bottom II, III	B	9, 9	2963 (2807)
Pilgrim I	B	11	1162 (873)
Point Beach I, II	P	13, 11	1403 (1360)
Prairie Island I, II	P	10, 9	233 (219)
Quad Cities I, II	B	10, 10	2491 (2437)
Rancho Seco I	P	8	787 (689)
Robinson II	P	12	923 (869)
Salem I, II	P	6, 2	581 (528)
San Onofre I	P	15	155 (118)
Sequoyah I, II (N)	P	2, 1	491 (507)
St. Lucie I	P	7	1204 (1086)
Surry I, II	P	11, 10	3220 (2822)
Three Mile Island I	P	9, 5	1159 (I-902, II-452)
Trojan	P	7	307 (263)
Turkey Point III + IV	P	10, 9	2681 (3315)
Vermont Yankee	B	11	1527 (1527)
Yankee Rowe	P	17	68 (63)
Zion I, II	P	10, 9	1311 (1254)

(N) ≡ Newly counted plant in 1983

Reactor Type	No. of Reactors	Total Person-Rems *	Average Person-Rems/React *
PWR	49	29016	592
BWR	26	27455	1056
LWR	75	56471	753

* 20.407 dose data used to calculate these figures

FIGURE 1

COMMERCIAL LIGHT WATER COOLED REACTORS
1969 - 1983

OCCUPATIONAL RADIATION DOSES AT NUCLEAR POWER-PLANTS

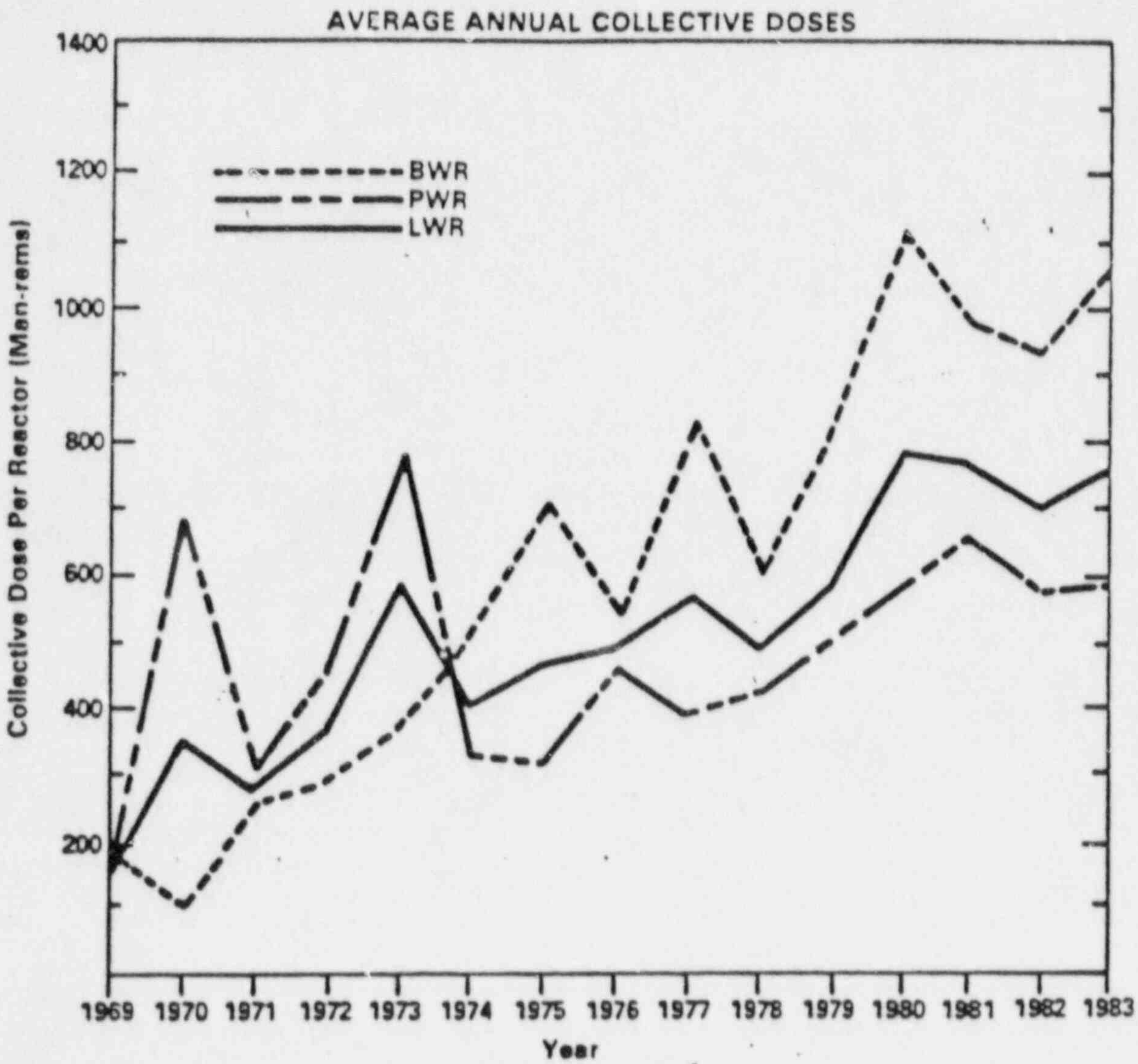


FIGURE 2

TOTAL NUMBER OF COMMERCIAL OPERATING NUCLEAR PLANTS AND TOTAL COLLECTIVE EXPOSURE RECEIVED AT THESE PLANTS 1969-1983

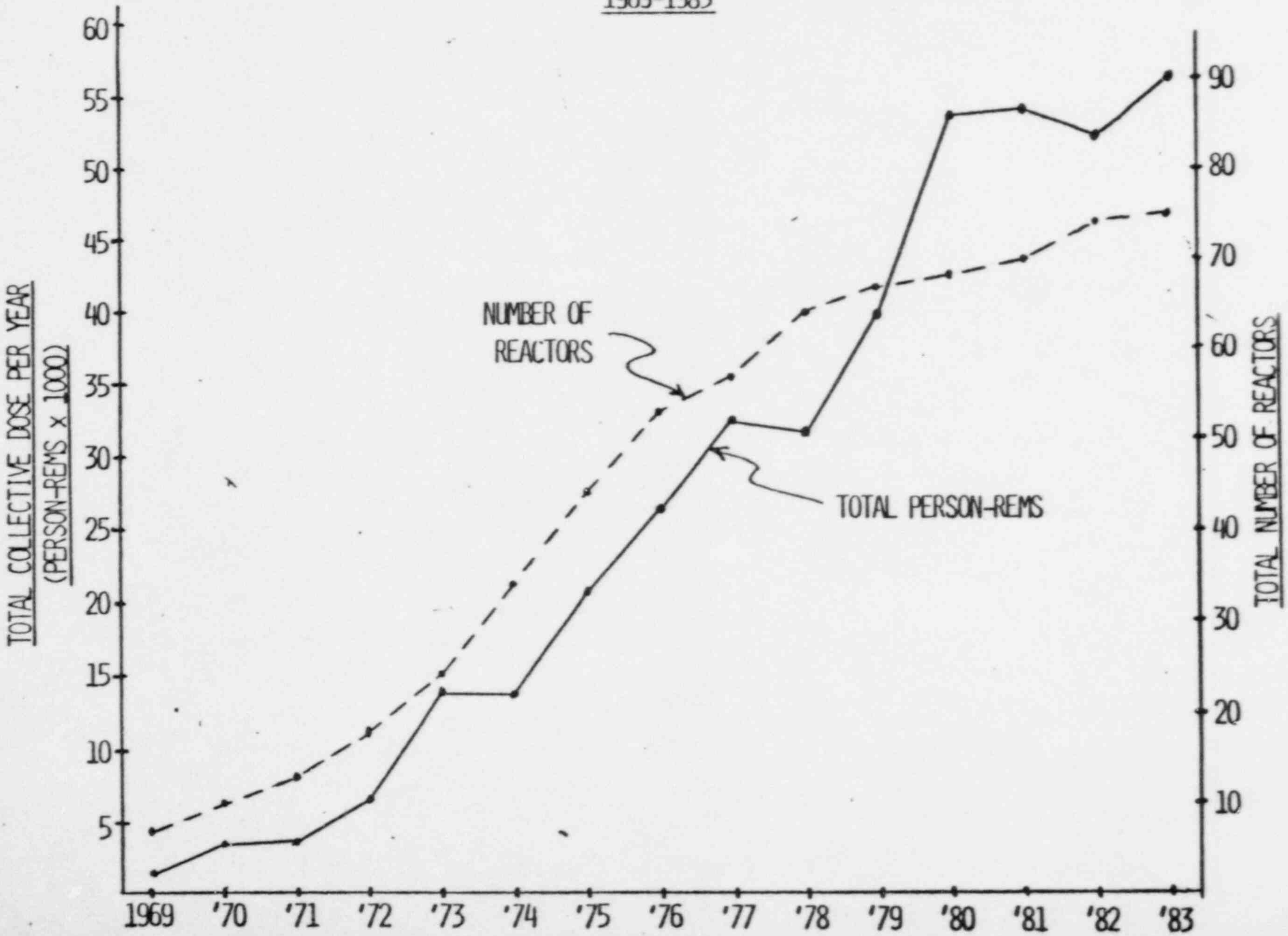
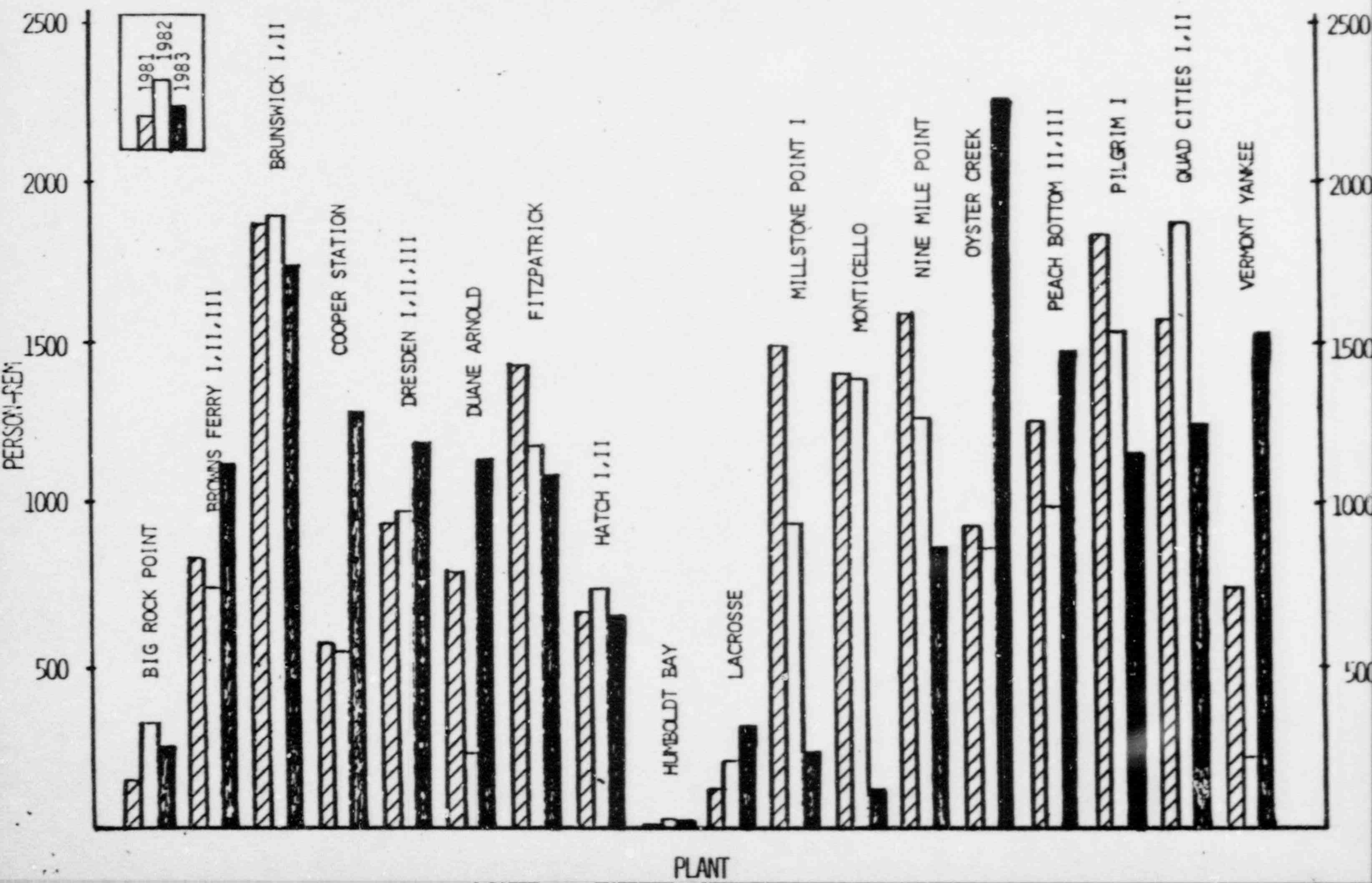


FIGURE 3

BWR PERSON-REMS/UNIT 1981-82-83



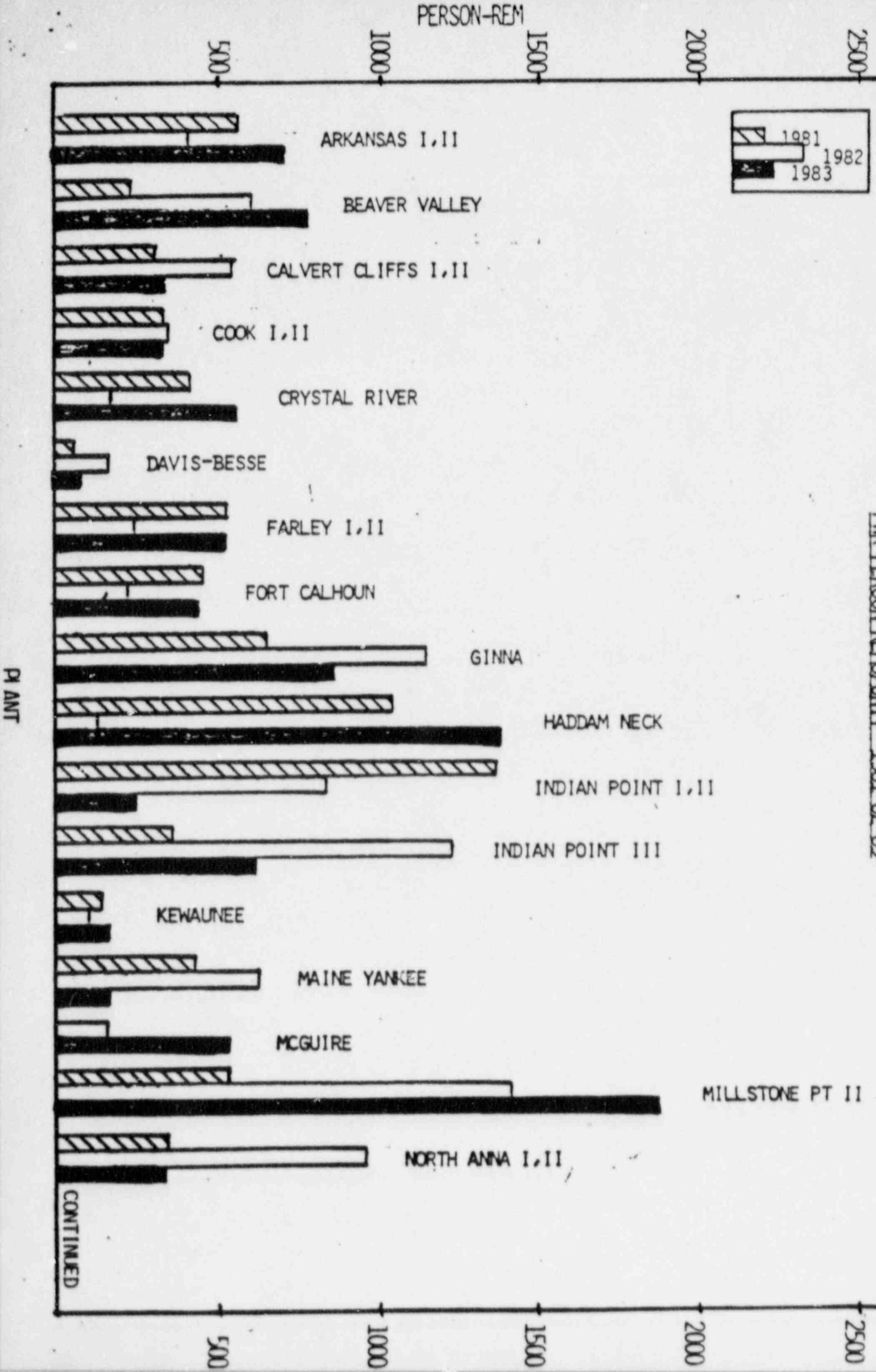


FIGURE 4A

PWR PERSON-REMS/UNIT 1981-82-83

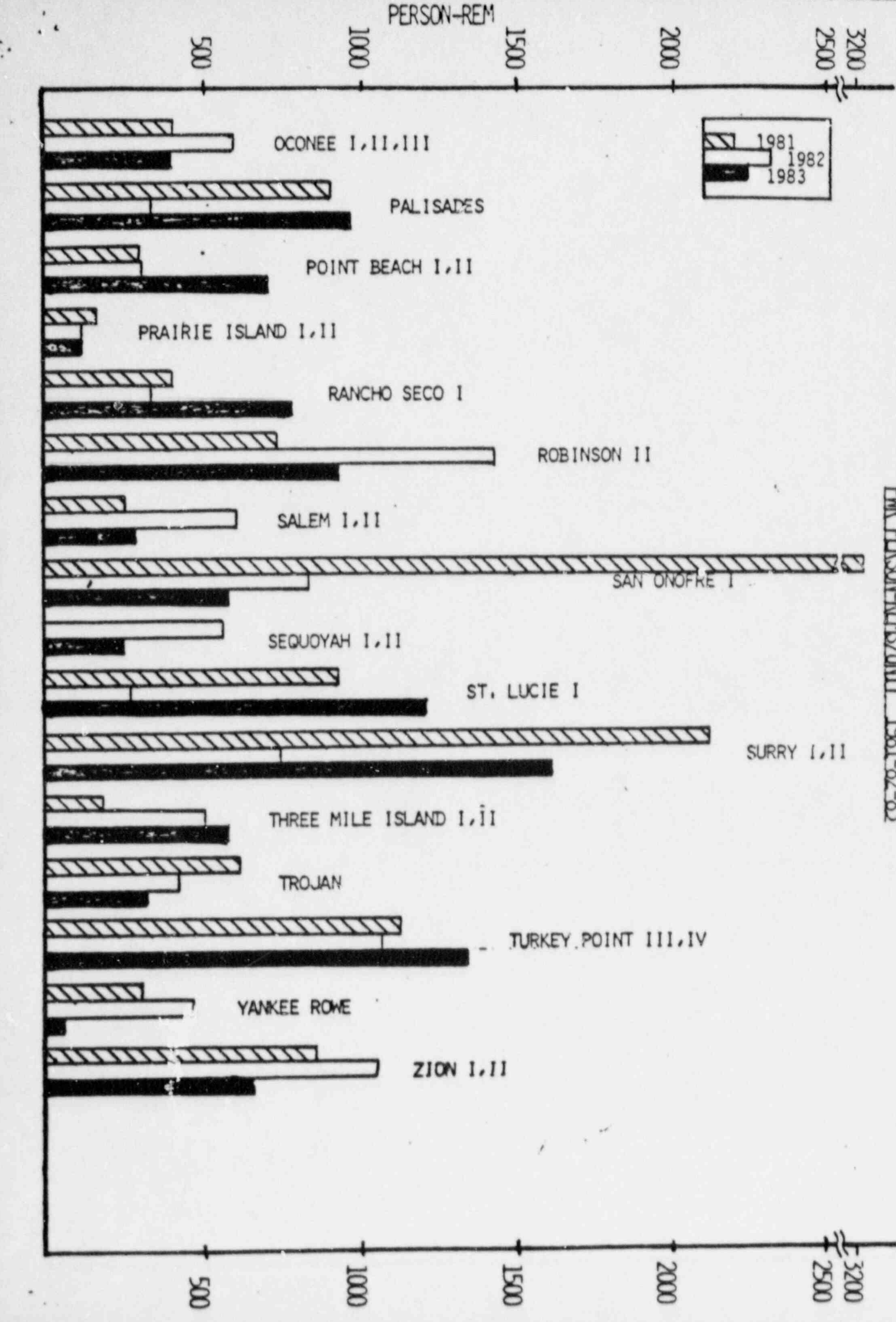


FIGURE 4B

PWR PERSON-REMS/UNIT 1981-82-83

cc: w/attachment
H. Denton
R. Bernero
R. Alexander
E. Conti
M. Parsont
R. Cunningham
W. Pasciak, Reg. I
M. Shambacky, Reg. I
G. Jenkins, Reg. II
R. Gregor, Reg. III
B. Murray, Reg. IV
H. Book, Reg. V
R. Hartfield
B. Brooks
A. Roecklein
D. Eisenhut
J. Cunningham
J. Wigginton
RAB Staff

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

Docket No. 50-219

JUL 20 1983

GPU Nuclear Corporation
ATTN: Mr. P. B. Fiedler
Vice President and Director
Oyster Creek Nuclear Generating Station
P. O. Box 388
Forked River, New Jersey 08731

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP) Report and your letter dated June 17, 1983

This refers to the SALP for the Oyster Creek Nuclear Generating Station conducted by this office on April 19, 1983 and discussed with your staff at a meeting on May 12, 1983. A list of attendees at the meeting is presented in Enclosure 1. The NRC Region I SALP Report is attached as Enclosure 2. This report evaluates the period February 1, 1982 through January 31, 1983 and any significant findings from the three month gap from the previous assessment period. Our letter dated April 29, 1983 which forwarded the SALP Report, and your letter dated June 17, 1983, which provides your actions and comments regarding the SALP Report, are attached as Enclosures 3 and 4.

Overall, your performance in the operation of the facility was found acceptable. During the meeting of May 12, 1983, we discussed our assessment of your regulatory performance in each of nine functional areas. Some of your comments at the meeting and in your June 17, 1983 letter address improvements in the backlog of items needing Plant Operations Review Committee attention, formalization of administrative procedures governing interfaces between divisions, improvements in the radiochemistry program, steps to improve quality of work and knowledge of maintenance department personnel, and improvement in procedures and administrative control of the integrated leak rate test. We believe your actions to be responsive and will improve future performance.

With regard to the statement in your June 17, 1983 letter which points out a design error as opposed to procedural inadequacies during the integrated leak rate test caused radioactive contamination of a portion of the reactor building service air system, we agree and have modified our report to correct the error.

In addition, as noted at the meeting, we concur that deficiencies in your radiochemistry program were identified in two functional areas of the report. To correct this we have amended Pages 7, 8, and 10 of our report. The amended pages are inserted preceding the original pages of the report.

In accordance with 10 CFR 2.790(a), a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

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No reply to this letter is required. Your actions in response to the NRC Systematic Assessment of Licensee Performance will be reviewed during future NRC inspections.

We believe that our May 12, 1983 meeting was beneficial and improved mutual understanding of your activities and our regulatory program. Your cooperation with us is appreciated.

Sincerely,

Thomas E. Murley
Regional Administrator

Enclosures:
1. SALP Management Meeting Attendees
2. NRC Region I SALP, GPU Nuclear Corporation, Oyster Creek Nuclear Generating Station
3. NRC Letter, R. W. Starostecki to P. B. Fiedler dated April 29, 1983
4. GPU Nuclear Corporation Response Letter, P. B. Fiedler to R. W. Starostecki dated June 17, 1983

cc w/encls:
M. Laggart, Licensing Supervisor
J. Knubel, BWR Licensing Manager
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of New Jersey

bcc w/encls:
Region I Docket Room (with concurrences)
Senior Operations Officer (w/o encls)
DPRP Section Chief
K. Abraham (2 copies)

ENCLOSURE 1

U.S. NUCLEAR REGULATORY COMMISSION SALP
MANAGEMENT MEETING ATTENDEES

Licensee: GPU Nuclear Corporation
Facility: Oyster Creek Nuclear Generating Station
Meeting At: Forked River, New Jersey
Meeting Conducted: May 12, 1983

Licensee Attendees

M. Budaj, Manager, Plans and Programs
J. T. Carroll, Director, Startup and Test
P. R. Clark, Executive Vice President, GPU Nuclear Corp.
R. D. Fenton, Oyster Creek Emergency Preparedness Manager
P. Fiedler, Vice President and Director, Oyster Creek
E. J. Growney, Safety Review Manager
R. W. Heward, Vice President - Radiolo ical and Environmental Control
D. Klucsik, Manager, Communication Service, Oyster Creek
J. Knubel, Manager, BWR Licensing
M. Laggart, Oyster Creek Licensing Manager
R. L. Long, Vice President, Nuclear Assurance
J. P. Maloney, Manager, Plant Material
F. F. Manganaro, Vice President and Director, Maintenance and Construction
R. S. Markowski, QA Oyster Creek Audit Manager
F. J. Maughan, Plant Security Supervisor, Oyster Creek
W. J. Smith, Plant Engineering Director
J. L. Sullivan, Plant Operations Director
J. R. Thorpe, Director, Licensing and Regulatory Affairs
C. R. Tracy, Manager, Oyster Creek QA MOD/OPS
D. W. Turner, Manager, Radiological Controls

NRC Attendees

R. R. Bellamy, Chief, Radiological Protection Branch, Division of Engineering and Technical Programs
E. L. Conner, Chief, Reactor Projects Section 3B, DPRP
C. J. Cowgill, Senior Resident Inspector, Oyster Creek
D. Crutchfield, Chief, Operating Reactors Branch #5, Division of Licensing, NRR
R. R. Keimig, Chief, Projects Branch #3, Division of Project and Resident Programs
J. J. Lombardo, Licensing Project Manager, Operating Reactors Branch #5, Division of Licensing, NRR
R. W. Starostecki, Director, Division of Project and Resident Programs (DPRP)
L. E. Tripp, Chief, Reactor Projects Section 3A, DPRP

Enclosure 2

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

GPU NUCLEAR CORPORATION

OYSTER CREEK NUCLEAR GENERATING STATION

APRIL 19, 1983

8307280435 36pp.

I. INTRODUCTION

a. Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect the available observations on an annual basis and evaluate licensee performance based on those observations with the objectives of improving the NRC Regulatory Program and licensee performance.

The assessment period is February 1, 1982 through January 31, 1983. This assessment, however, contains pertinent observations and NRC and licensee activities through February 1983.

The prior SALP assessment period was November 1, 1980 - October 31, 1981. Significant findings of this assessment and the period between the previous assessment and this assessment are provided in the applicable Performance Analysis Functional Areas (Section IV).

Evaluation criteria used during this assessment are discussed in Section III. Each criterion was applied using the "Attributes for Assessment of Licensee Performance" contained in NRC Manual Chapter 0516.

b. SALP Board Members:
- R. W. Starostecki, Director, Division of Project and Resident Programs
- R. R. Keimig, Chief, Projects Branch No. 2, Division of Project and Resident Programs
- R. R. Bellamy, Chief, Radiological Protection Branch, Division of Engineering and Technical Programs
- L. E. Tripp, Chief, Reactor Projects Section 2A, Division of Project and Resident Programs
- J. J. Lombardo, Licensing Project Manager, Operating Reactors Branch No. 5, Division of Licensing, Office of NRR
- C. J. Cowgill, Senior Resident Inspector, Oyster Creek Nuclear Generating Station

Other Attendees: J. A. Thomas, Resident Reactor Inspector, Oyster Creek Nuclear Generating Station

c. Background

(1) Licensee Activities

At the beginning of the assessment period, the facility had been in cold shutdown since December 9, 1981 to investigate the failure of an isolation condenser valve. The valve failure was caused by stem nut cracking and stem damage resulting from the practice of electrically backseating the valve to prevent packing leakage. Other valves with Limitorque Operators that had been frequently backseated were found to have similar damage and were repaired. Valve repairs were completed by the end of January 1982, but the plant remained shutdown to replace leaking coolers on the diesel generators and to complete surveillances which Technical Specifications required to be done each refueling outage (but at intervals of no more than 20 months).

The licensee satisfactorily completed an annual emergency plan exercise on March 16, 1982. The exercise was observed by teams from NRC and FEMA.

The plant began operating on April 12, 1982 but scrammed on April 13 when operator error caused inadvertent closure of the Main Steam Isolation Valves. The plant was restarted that day, however, a controlled shutdown was performed the following day to repair steam leaks on a main steam reheater pressure regulating valve. Operation resumed on April 15, but the reactor scrammed on April 17, 1982 when a flooded offgas delay pipe caused a loss of condenser vacuum. The plant was restarted on April 18 and operated at 60 to 70 percent power, limited by one of three condensate pumps being out of service.

The plant continued to operate at reduced power until shutdown on May 23, 1982 to repair a steam leak on a steam reheater manway cover gasket. Operation limited to 60 - 70 percent power was resumed on May 27.

The plant scrammed after a high reactor water level turbine trip on June 4, 1982, while attempting to fill the reactor water cleanup system. The plant was restarted on June 5, with all three condensate pumps available for operation. However, the plant remained at a reduced power of about 80 percent because of fuel depletion. The plant continued to operate in "coastdown."

The plant was shutdown on August 13, 1982 to investigate the cause of high differential pressure across the salt water side of the containment spray heat exchangers. Extreme fouling by marine life debris was found on the tube sheets of all four heat exchangers. The heat exchangers were cleaned and the plant went back on line at reduced power on August 29.

The licensee underwent an audit by the Institute of Nuclear Power Operations (INPO) between October 25 and November 4, 1982. NRC (Region I) representatives did not attend the INPO debriefing and a report of their findings was not yet issued at the time of this assessment.

On November 24, 1982, high seal cavity temperature caused by pump seal degradation forced the removal of the 'A' reactor recirculation pump from service. Continued leakage of the seal forced a reactor shutdown on December 10 to replace the seal. Restart was begun on December 13 with all five recirculation pumps operating normally. During startup, a high flux scram occurred while in the intermediate range. During restart from the trip, the reactor was manually scrammed when water hammer occurred in the feed water piping. On December 18, 1982, the reactor again scrammed due to low reactor water level caused by valve oscillations when placing the reactor water cleanup system in service. Power operation was resumed on December 21, 1982.

On December 21, 1982, operator error caused initiation of the containment spray system. One pump ran for about 30 seconds injecting cooling water into the drywell air space. Electrical checks of components in the drywell showed no abnormalities and power operation continued.

At the end of the assessment period, the facility was operating at about 50 percent power in coastdown with an 11 month refueling outage scheduled to begin in mid-February 1983.

(2) Inspection Activities

One NRC resident inspector was assigned to the site for the entire assessment period. A senior resident inspector was assigned periodically from April through July 1982, and permanently from August through the end of the assessment period.

Total NRC Inspection Hours: 2435 (Resident and region based). Distribution of inspection hours is shown in Table 3.

A tabulation of inspection activities is shown in Table 4, and a tabulation of enforcement data is shown in Attachment 1.

An emergency response appraisal team inspection was conducted in January 1982 prior to the beginning of the assessment period, and a team evaluation of the licensee's annual emergency drill was performed in March 1982.

TABLE OF CONTENTS

TABLES

ATTACHMENTS

II. SUMMARY OF RESULTS

OYSTER CREEK NUCLEAR GENERATING STATION

FUNCTIONAL AREAS	CATEGORY 1	CATEGORY 2	CATEGORY 3
1. Plant Operations		X	
2. Radiological Controls ° Radiological Protection ° Radioactive Waste Management ° Transportation ° Effluent Control and Monitoring		X	
3. Maintenance		X	
4. Surveillance (Including Inservice and Preoperational Testing)		X	
Fire Protection and Housekeeping		X	
6. Emergency Preparedness		X	
7. Security and Safeguards	X		
8. Refueling/Outage Activities		X	
9. Licensing Activities		X	

III. CRITERIA

The following performance aspects were reviewed in each area:

1. Management involvement in assuring quality.
2. Resolving technical issues from a safety viewpoint.
3. Responsiveness to NRC initiatives.
4. Enforcement history.
5. Reporting and analysis of reportable events.
6. Staffing (including management).
7. Training effectiveness and qualification.

To provide a consistent evaluation, attributes relating each aspect to the characteristics of Category 1, 2, and 3 performance were applied as discussed in NRC Manual Chapter 0516, Part II and Table 1.

The SALP Board conclusions were categorized as follows:

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 is being achieved.

Category 2: NRC attention should be maintained at normal levels. Licensee management attention and involvement in nuclear safety are evident; licensee resources are adequate and reasonably effective such that satisfactory performance with respect to operational safety is being achieved.

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 strained or not effectively used such that minimally satisfactory performance with respect to operational safety is being achieved.

IV. PERFORMANCE ANALYSIS

1. Plant Operations (40%)

Analysis of this area includes direct observation of plant operational activities and operational support activities. The operations area was under continual review by the resident inspectors supplemented by region-based inspectors. Inspections examined compliance with license and procedural requirements, design changes and modifications, training, housekeeping, quality assurance audits, corrective action systems, safety review committees, and reporting systems.

During the assessment period, improvement was noted in the area of operator awareness of plant conditions, knowledge of technical specifications, and operators' attention to detail. In general, operator response to transient and abnormal conditions was good. However, when other than normal system alignments did not require immediate operator action, operators were sometimes not fully aware of all the potential safety concerns and did not always aggressively pursue correction of the problems that caused the unusual alignment. There were deficiencies noted in the adequacy and formality of control room shift turnovers, but observations later in the assessment period indicated significant improvement. A main steam isolation valve closure scram and an inadvertent containment spray actuation were caused by operator error resulting from inattention to activities in progress. Both events were caused by the same operator and are not indicative of a general carelessness by licensed operators. The licensee's corrective actions in these events appears to have been adequate. Five licensee event reports involved personnel errors by licensed operators, however, the nature of the events were such that none were significant nor indicative of adverse trends in this area. In fact, improvements in operator technical knowledge and more management attention to prevention of operator error have been noted. Frequent management presence in the control room has been noted. Operations management frequently observes and participates in routine shift turnovers, providing for prompt management review of operating logs, instrument recorder traces and discussion of plant status with operators. Fewer incidents involving procedure violations have occurred as compared to the last assessment period. This is the result of enforcement of the management policy of verbatim compliance with written procedures, and a vigorous program of review and revision of procedures.

Two improper releases of radioactive liquids to the environment during this assessment period are attributable to personnel error. One involved an unplanned unmonitored release when contaminated water was drained from a service air system. The drain path was thought to go to a waste collection system when in fact it went to a storm drain system. An improperly monitored release occurred when, during a planned release of treated liquid to the environment, the record set of laboratory samples was drawn from the wrong tank.

The Plant Operations Review Committee (PORC) has been generally effective in reviewing safety issues. However, the large backlog of items needing PORC review has caused significant delays in issuance of many revised procedures. The licensee is attempting to correct this by using alternate PORC members, while maintaining proper committee quorum, to conduct daily PORC meetings. The large backlog is partially the result of the extensive program of procedure review and upgrade and the large number of modifications and design change packages requiring review prior to the scheduled refueling outage. The large number of procedure revisions has been necessitated in part by the licensee's increased emphasis on verbatim compliance and efforts to clarify the often cumbersome and difficult to follow operating procedures.

An inspection conducted early in the assessment period identified deficiencies in the area of control of design changes and modifications. Many necessary administrative procedures for control of the development of design change packages, control of documents, turnover of systems, and update of drawings and system procedures had not been issued. The licensee is undergoing major reorganization in the Maintenance and Construction and Technical Functions Divisions, and as a result, the necessary interfaces between the various corporate divisions and plant staff had not been formalized in administrative procedures. A followup inspection later in the assessment period noted significant improvement in that the Maintenance and Construction Work Management System Manual was issued to provide the necessary administrative controls in the areas of maintenance, design changes, and modifications. Senior management attention to the problem areas was evident and progress toward establishing an acceptable program by the 1983 outage appears adequate.

Early in the assessment period, some deficiencies were noted involving failure to follow equipment control procedures and inadequacies in the equipment control procedures. With assistance from a management consultant, the licensee revised the procedures to provide better control of equipment tagging, jumpering, and lifting of electrical leads. The program changes were major and required formal training of operations personnel. The new program was implemented late in the assessment period and appears to have corrected the previous deficiencies.

Responsibility for licensee's radiochemistry program was placed under the cognizance of the operations department during the assessment period. There were significant deficiencies identified that are discussed in section two, page 10. Licensee made several personnel changes within the department and improvement was noted at the end of the period.

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Significant deficiencies were found in the licensee's radiochemistry program which is under the cognizance of the operations department. They involved inadequate procedures, improper control and calibration of counting equipment, and improper review of procedures. Most of the deficiencies had been previously identified by the licensee's internal audits and were the result of inadequate management review of and involvement in the radiochemistry program. The licensee has begun a program to upgrade the training and qualification of the chemistry technicians and supervisors, to increase the size of the staff, and to

The plant engineering staff appears to be capable of providing adequate operational support to the facility. Improvement has been noted in the plant/corporate engineering interface which provides better onsite outage planning and coordination. In the past, followup analysis of plant events was frequently delayed. However, recent plant events and transients have received a prompt, coordinated effort between plant engineering, technical functions, and plant operations to perform in-depth analysis of the events and accurate, timely assessments of the consequences. Of particular note were the plant responses to a reactor feed system water hammer event, a high worth control rod withdrawal event, and the assessment of the radiological consequences of a leakage from the radwaste system waste surge tank. The technical content of Licensee Event Reports is generally excellent, although reports are not always timely. The cause of many events is frequently coded as "other," however, the narrative description of the cause is generally accurate and indicative of a thorough review. The analysis of the event and corrective actions are generally indicative of a sound, technical approach to safety issues.

During this assessment period, general improvement was noted in management control and review of most operations functions and in licensed operator performance. However, the occurrences of unmonitored releases, the significant breakdown of management controls in the radiochemistry program, the large backlog of PORC review items, and deficiencies in the design change and modification programs indicate needed management attention to effect improvements.

Conclusion - Category 2

Board Recommendations - Maintain inspection coverage consistent with program requirements for a plant in a refueling outage.

provide more in-depth management review of the daily radiochemistry activities. Improvement has been noted in this area.

The plant engineering staff appears to be capable of providing adequate operational support to the facility. Improvement has been noted in the plant/corporate engineering interface which provides better onsite outage planning and coordination. In the past, followup analysis of plant events was frequently delayed. However, recent plant events and transients have received a prompt, coordinated effort between plant engineering, technical functions, and plant operations to perform in-depth analysis of the events and accurate, timely assessments of the consequences. Of particular note were the plant responses to a reactor feed system water hammer event, a high worth control rod withdrawal event, and the assessment of the radiological consequences of a leakage from the radwaste system waste surge tank. The technical content of Licensee Event Reports is generally excellent, although reports are not always timely. The cause of many events is frequently coded as "other," however, the narrative description of the cause is generally accurate and indicative of a thorough review. The analysis of the event and corrective actions are generally indicative of a sound, technical approach to safety issues.

During this assessment period, general improvement was noted in management control and review of most operations functions and in licensed operator performance. However, the occurrences of unmonitored releases, the significant breakdown of management controls in the radiochemistry program, the large backlog of PORC review items, and deficiencies in the design change and modification programs indicate needed management attention to effect improvements.

Conclusion - Category 2

Board Recommendations - Maintain inspection coverage consistent with program requirements for a plant in a refueling outage.

2. Radiological Controls (14%)

Evaluation in this area included monthly review of selected program areas by the resident inspectors and six inspections by region based inspectors of the radiation protection program, radioactive waste management, shipping, radioactive effluent monitoring, and radiochemistry program.

The licensee has developed a strong management organization in the radiological controls department with multiple levels of supervision and a viable reporting structure. The licensee's radiation protection staff is supplemented by contractor personnel with the two groups well integrated at both the technician and supervisory levels. Health Physics (HP) technicians are required to complete formal qualification programs which include both classroom and on-the-job training with written and oral board exams prior to performing responsible plant related duties. Improved General Employee Training programs have increased the plant and contractor employees' general knowledge and awareness of radiological conditions in the plant and the requirements of the radiation protection program. Procedural requirements are generally well defined and understood, and the radiological precautions written into other Plant operating, maintenance, and special installation procedures are indicative of thorough review by the radiological engineering group.

Response to noted deficiencies was generally prompt and appropriate. A violation for inadequate drywell access controls resulting in workers being locked in the drywell was corrected by issuance of a new temporary procedure shortly after identification of the violation.

Recent reorganizations in the areas of radioactive waste management and waste shipping have resulted in a strong management organization. The licensee has pursued a vigorous waste reduction program and has greatly reduced the volume of treated water released to the environment. Reviews of the waste shipping program indicate strict management control of shipping activities.

Weaknesses were noted in the areas of radiological effluent monitoring and in the radiochemistry program. Four licensee event reports were submitted on unmonitored liquid releases. Two releases were the result of equipment failure. One release was the result of contaminated water being drained into a storm sewer system by mistake and one improperly monitored release resulted when monitoring samples were taken from the wrong location. One violation was the failure to collect proper environmental air samples and one violation was the failure to perform adequate gamma spectroscopy measurements of effluent samples when the laboratory equipment was not properly

calibrated. In general, the licensee's actions after an unmonitored release were good. They included collection and analysis of appropriate environmental samples to adequately assess the environmental and safety impact. None of the releases resulted in allowable limits being exceeded.

Major programmatic weaknesses in the radiochemistry program were indicative of a general breakdown in the management controls. No central responsibility was assigned for management of the site chemistry program. As a result, procedures were poorly implemented and many were inadequate, procedures were improperly reviewed, analytical results were not reviewed and analyzed for trends, and radiochemstry laboratory equipment was poorly maintained and controlled. Most deficiencies in this area were also noted by the licensee's internal audits and a vigorous corrective action program is in progress. The deficiencies in calibration and control of radiochemistry laboratory equipment resulted in erroneous calculations in the environmental effluent monitoring program for about one year.

Licensee has begun a program to upgrade the training and qualification of the chemistry technicians and to increase the size of the staff and to provide more in-depth management review of the daily radiochemistry activities. Improvement has been noted in this area.

Conclusion - Category 2

Board Recommendations - Resident Inspectors should review the licensee's corrective actions in the radiochemistry program with a followup independent measurements inspection by region based inspectors prior to the end of the 1983 refueling outage.

calibrated. In general, the licensee's actions after an unmonitored release were good. They included collection and analysis of appropriate environmental samples to adequately assess the environmental and safety impact. None of the releases resulted in allowable limits being exceeded.

Major programmatic weaknesses in the radiochemistry program were indicative of a general breakdown in the management controls. No central responsibility was assigned for management of the site chemistry program. As a result, procedures were poorly implemented and many were inadequate, procedures were improperly reviewed, analytical results were not reviewed and analyzed for trends, and radiochemistry laboratory equipment was poorly maintained and controlled. Most deficiencies in this area were also noted by the licensee's internal audits and a vigorous corrective action program is in progress. The deficiencies in calibration and control of radiochemistry laboratory equipment resulted in erroneous calculations in the environmental effluent monitoring program for about one year.

<u>Conclusion</u> - Category 2

<u>Board Recommendations</u> - Resident Inspectors should review the licensee's corrective actions in the radiochemistry program with a followup independent measurements inspection by region based inspectors prior to the end of the 1983 refueling outage.

3. Maintenance (9%)

This area was under review by the resident inspectors throughout the assessment period. In addition, two inspections by region-based inspectors examined the maintenance organization and staffing.

A major reorganization of the maintenance department occurred in early October, 1982. All corrective maintenance is now performed by the Maintenance and Construction (M&C) Division under the Vice President, Maintenance and Construction, and all corrective maintenance personnel including supervision report to that division. The plant maintenance manager provides plant review and approval of all work assigned to M&C. Interfaces between the plant staff and M&C are provided in the plant conduct of maintenance procedure. Additional changes to the organization will occur when an amendment is issued to formalize the reorganization in the Technical Specifications. Procedures to fully implement the new program are under development. The revised organization has provided for higher level management review of maintenance activities, with difficulties in divisional interfaces being resolved at the Vice President level, when necessary. However, review of the organization and discussions with plant personnel have indicated that there is still some confusion with respect to organizational interfaces. Early in the reorganization phase, many individuals indicated that they were unaware of what their duties and responsibilities would be in the new organization. Observation of daily maintenance planning meetings also indicate the need for further definition of responsibilities and divisional interfaces.

Consolidation of the plant maintenance and M&C supervisory staffs has provided increased manpower in the maintenance area with a current supervisor to worker ratio of about 1 to 10. The licensee intends to increase the staff further to attain an average supervisor to worker ratio of about 1 to 8. However, there are still indications of weaknesses in the first line supervision of maintenance crews. A violation occurred during this assessment period when the emergency diesel oil heaters were secured improperly during maintenance. The particular procedural violation had become routine maintenance practice approved and encouraged by the first line supervisor. In addition, there are indications of a lack of adequate direct field observation and verification of work activities by first line supervision.

Improvement has been made in this area since the last SALP assessment period. The maintenance staff includes full time schedulers who are experienced in most aspects of corrective maintenance. The schedulers review priorities, availability of material, and manpower needs, and coordinate with maintenance and plant supervision to schedule individual tasks.

Schedulers frequently review outstanding work orders in an effort to reduce the maintenance back log. Plant administrative procedures give clearly stated guidelines for assignment of work order priorities, and new work orders as well as tasks in progress are reviewed daily by senior plant management.

Revised procedures now give specific requirements for cancellation of work orders, which occurs only rarely, and only after obtaining concurrence of the initiating department supervisor. Availability of current equipment data and technical manuals has improved. Some trending of corrective maintenance is now performed and improvements have been made in machinery history records. Future reorganizations are planned to further improve maintenance history records with the formation of a plant materiel group.

Although significant improvement has been made in the general management control and review of maintenance functions, frequent rework of some jobs indicates there may be a need to improve the general quality of work and knowledge of maintenance mechanics. Near the end of the assessment period, the licensee began a program of formal classroom instructions for maintenance personnel. Improvements in this area are expected as the outage progresses.

There is evidence of management involvement and control in assuring quality in preventive maintenance. There is a full time dedicated manager with a staff to supervise and schedule. About thirty persons are assigned to perform preventive maintenance and surveillance on electrical, mechanical, instrument control and fire protection systems. Presently, all scheduling of preventive maintenance is done manually, but the licensee intends to computerize scheduling and recording in the future. A program of trend analysis of preventive maintenance and surveillance results has been started and will be expanded in the future.

<u>Conclusion</u> - Category 2

<u>Board Recommendations</u> - None.

4. Surveillance (10%)

This area was under review by the resident inspectors throughout the assessment period. One inspection of the containment leak rate test program was conducted by region-based inspectors.

Adequate management control and review of routine technical specification related surveillance programs exist. A master surveillance listing has been prepared which incorporates all surveillances required by technical specifications. An annual master schedule is prepared and is updated when technical specification amendments change surveillance requirements. Previous problems existed which involved failure to modify surveillance schedules and procedures as technical specification changes were issued. Increased management review of surveillance programs and regulatory changes have resulted in improved performance in this area. No similar problems have occurred during this assessment period.

Routine surveillance testing has generally been performed properly and on time with no violations and only two licensee event reports resulting from missed surveillances.

The review of surveillance test results has improved. First line supervisors are now responsible for the first level of review and greater management level attention is given to review and evaluation of test results. The licensee's "deviation report" system provides for prompt identification and followup evaluation of deficiencies identified during surveillance testing.

Licensee's followup review process for surveillance tests has improved in that anomalous test results have been identified and reported which were not identified in the initial review. Although some improvement in the initial review has been noted, additional effort to strengthen that process is required.

Seven of the fourteen licensee event reports relating to surveillance involved setpoint drift of safety related sensors. This has been a recurring problem and has received considerable management attention. Modifications are scheduled for the next refueling outage to correct this problem.

Although the conduct of the routine surveillance program is adequate, significant deficiencies existed in the performance of containment leak rate testing program. Violations for inadequate implementation of leak rate test procedures and observed inadequacies in the general control and coordination of the leak test program indicated a major breakdown of the management control and review of this program. There was little evidence of prior planning for the leak test program conducted in March and April of 1982. NRC review of the test program found frequently procedural violations, improper evaluation of test results, and indications that the personnel performing the tests lacked familiarity with the regulatory requirements relating to primary containment leak testing. Procedural inadequacies resulting from design and evaluation deficiencies resulted in radioactive contamination of the reactor building service air system. Also, testing found an improperly assembled valve that had remained in an inoperable condition since the 1980 refueling outage. The improper assembly had gone undetected until early 1982 because of procedural inadequacies in the leak test program. The licensee has committed to revise the affected procedures prior to using them again.

Inadequate prior planning for the leak rate test program was due, in part, to sudden unforeseen schedule changes. Operational problems forced a plant shutdown in December 1981 which lasted for three months. As a result, the licensee rescheduled the planned refueling outage for early 1983. The schedule change resulted in the required containment leak rate testing being due prior to the refueling, so the licensee elected to perform the testing prior to plant startup. This allowed very little time for procedure reviews, training of technicians and other prior planning. In addition, the testing was performed by a group of inexperienced personnel who were unfamiliar with the procedural and administrative requirements of the program. Observation of local leak rate testing performed since the end of this assessment period has noted significant improvements in this area.

In the previous assessment period, a weakness was identified in management of the controls in the IST program in that commitments made in April 198' were not met and no followup or notification was provided to the NRC. During this assessment period, the licensee revised his commitment dates for some of the items identified in the 1981 letter. As of the end of this assessment period, the administrative procedure for control of the IST program has not been implemented, indicating that management controls require further strengthening. One possible cause for continued problems in this area is that there have been three IST coordinators in the past 3 years.

Conclusion - Category 2

Board Recommendations - Inspect the primary containment leak rate test program during leak rate testing at the end of the 1983 refueling outage.

found frequent procedural violations, improper evaluation of test results, and indications that the personnel performing the tests lacked familiarity with the regulatory requirements relating to primary containment leak testing. Procedural inadequacies during the Integrated Leak Rate Test resulted in a valving error that caused radioactive contamination of a portion of the reactor building service air system. Also, testing found an improperly assembled valve that had remained in an inoperable condition since the 1980 refueling outage. The improper assembly had gone undetected until early 1982 because of procedural inadequacies in the leak test program. The licensee has committed to revise the affected procedures prior to using them again.

Inadequate prior planning for the leak rate test program was due, in part, to sudden unforeseen schedule changes. Operational problems forced a plant shutdown in December 1981 which lasted for three months. As a result, the licensee rescheduled the planned refueling outage for early 1983. The schedule change resulted in the required containment leak rate testing being due prior to the refueling, so the licensee elected to perform the testing prior to plant startup. This allowed very little time for procedure reviews, training of technicians and other prior planning. In addition, the testing was performed by a group of inexperienced personnel who were unfamiliar with the procedural and administrative requirements of the program. Observation of local leak rate testing performed since the end of this assessment period has noted significant improvements in this area.

In the previous assessment period, a weakness was identified in management of the controls in the IST program in that commitments made in April 1981 were not met and no followup or notification was provided to the NRC. During this assessment period, the licensee revised his commitment dates for meeting some of the items identified in the 1981 letter. As of the end of this assessment period, the administrative procedure for control of the IST program has not been implemented, indicating that management controls require further strengthening. One possible cause for continued problems in this area is that there ~~has~~ been three IST coordinators in the past 3 years.

Conclusion - Category 2

Board Recommendations - Inspect the primary containment leak rate test program during leak rate testing at the end of the 1983 refueling outage.

5. Fire Protection and Housekeeping (4%)

One fire protection program inspection was conducted by a region based inspector during this assessment period. Fire protection and housekeeping were under continual review by the resident inspectors.

A full time Fire Protection Manager is assigned to the facility with sufficient staff resources to carry out all Fire Protection Program functions. Portions of the fire protection staff have been recently reassigned to the preventive maintenance department to provide for a centralized control of preventive maintenance including maintenance and inspection of fire protection equipment. This also frees the Fire Protection Manager from supervisory activities and allows more direct management level programmatic review and analysis. A coherent and effective training program has been established and assures that all operating shifts have a fully trained fire brigade.

The licensee's submittal made in accordance with 10 CFR 50 Appendix R indicated an adequate understanding of the technical and safety issues and a sound approach to resolution of the issues. The licensee has requested exemptions to some requirements of 10 CFR 50 Appendix R. These exemptions are currently under NRC review. One Licensee Event Report in the Fire Protection area involved an activation of the fire suppression system and the resulting wetdown of safety related electric equipment. Similar events had occurred during the previous assessment period which demonstrated inadequacies in the original fire protection safety evaluation. The licensee performed an extensive survey of plant systems and conducted a program of waterproofing electrical components and installation of drip shields over safety related motors and motor control centers. At the time of the event during this assessment period, the drip shield installation was complete, but the installation of terminal box gaskets and conduit sealing devices was not complete. The licensee performed a revaluation of the water tight integrity of safety related equipment and accelerated the waterproofing program in the plant.

The licensee has made significant improvements in the area of housekeeping, as a result of increased management attention which included periodic housekeeping inspections by plant management staff. General cleanliness of the plant has improved as clean up crews continually remove trash and debris before it builds up to significant levels. However, further improvements can be made by improving the attitude of general plant workers toward housekeeping. Radiological housekeeping conditions are generally acceptable. The licensee has made some reduction in the number of contaminated and high radiation areas but further reduction is still needed.

Conclusion - Category 2

Board Recommendations - None.

6. Emergency Preparedness (10%)

Analysis in this area is based on observation by an NRC Team of the annual emergency preparedness exercise which is designed to demonstrate all facets of the emergency plan, and on periodic observation by the resident inspectors of plant training exercises.

During the annual exercise on March 16, 1982, the licensee demonstrated an adequate capability to deal with a plant emergency. A number of deficiencies, most of which were also identified by the licensee, were noted in the areas of information flow, dose assessment, offsite radiological surveys, data display, personnel training, and communications. Resident inspector observations indicated that significant improvement has been made in overall site readiness prior to the exercise. Continued senior level management attention to emergency planning is evident with a full time manager assigned at the site with a significant support staff of emergency planning specialists. The licensee has also maintained a viable active duty roster of qualified emergency response personnel. The licensee has also maintained adequate shift coverage to ensure that all emergency plan requirements for non-licensed onshift personnel were met. Emergency plan training is an integral part of operator qualification and requalification training, and quarterly full scale emergency plan training drills are conducted on site.

The emergency plan and procedures continue to be adequate and shift personnel have maintained familiarity with them. The inspectors noted, however, that some procedures are cumbersome and difficult to follow. The licensee has indicated that they are planning to revise the emergency procedures to streamline them.

The licensee was issued a Notice of Violation for failure to complete the public notification system by February 1, 1982. Installation was completed on March 5, 1982. The licensee had instituted compensatory measures in the interim and 45 of 46 planned sirens were installed before March 1.

Prior to the assessment period, an Emergency Preparedness Implementation appraisal was conducted which identified a number of findings including the need for improvements in support facilities, personnel training, offsite dose assessment, procedural development, and post accident reactor coolant sampling capabilities. NRC staff has met with the licensee and is in the process of resolving the post accident sampling issue.

Conclusion - Category 2

Board Recommendations - None.

7. Security and Safeguards (8%)

During the assessment period, there were three unannounced physical security inspections and one material control and accounting inspection conducted by region-based inspectors, and continuous inspections by the Resident Inspectors. Three minor procedural violations were identified and the licensee's corrective actions were timely and appropriate. The licensee was effective in maintaining overall security program performance and management support of site security activities was evidenced by the purchase of new explosives detectors, the assignment of professional training instructors to the security program, and the purchase of an improved computerized access control software program scheduled for installation in March 1983.

In preparation for the forthcoming refueling outage, licensee management has augmented security staff with contractor personnel. These personnel are currently undergoing training to qualify to supplement the existing guard force. The Site Security Supervisor resigned in January 1983. A qualified replacement was selected from within the company with no lapse in the supervision of the Security Department.

NRC inspection findings were corrected quickly, and actions to prevent recurrence proved adequate. There have been no repeat violations.

During this assessment period, the licensee submitted 11 Security Event Reports. The majority of these reports resulted from computerized access control system failures. The impact of these events was minimized because of timely and effective compensatory measures. The licensee intends to modify existing software to reduce or eliminate this problem, as noted above.

All security personnel appeared to be knowledgeable of their assigned duties. The Guard Training and Qualification Program is progressing on schedule, and the program is well defined and implemented by experienced personnel.

Conclusion - Category 1

Board Recommendations - Maintain normal inspection coverage.

8. Refueling and Major Outage Activities (5%)

There were no refueling outages during this assessment period, however, there were several short maintenance outages and considerable planning efforts in preparation for the 1983 refueling outage.

Considerable improvement was noted in scheduling and coordination of outage activities. The Programs and Controls department whose manager reports directly to the Vice President and Director, Oyster Creek, has been expanded and now includes a full time staff of schedulers and planners. This department oversees all outage planning at the site and coordinates site planning activities with the Technical Functions and Maintenance and Construction Divisions planning and scheduling activities. The department has effectively planned short outages with scheduling activities generally addressing key outage and outage recovery items. During forced shutdowns that occurred during the assessment period, the Programs and Controls Department was able to quickly develop schedules that not only allow prompt completion of the critical repairs but also allowed the plant to capitalize on the down time to complete other maintenance activities.

More direct management attention to review of contractor work activities has resulted in some improvement in the control of these activities. Operations supervision is now required to survey work areas accompanied by contractor supervision, prior to the start of work, to assure that contractor activities will not impair plant operation. Observation of contractor activities has indicated that contractor personnel are now more aware of radiological working conditions and requirements, as well as the general plant administrative procedures for conduct of work activities.

Significant deficiencies were noted early in the assessment period with the coordination and control of design change and modification activities. As discussed in section IV.1 of this report, the licensee has made progress toward correction of these deficiencies.

Although recent organizational changes have been made to provide an integrated and improved system of controls for work being done in the plant, the organization is still evolving with some problems with organizational interface remaining. The 1983 refueling outage schedule has been changed several times. The refueling was originally scheduled for late 1981. After several reschedulings, the outage actually began February 11, 1983. Most of the delays were the result of operational problems throughout the fuel cycle which prevented the licensee from achieving the intended fuel burnup. However, other delays were the result of the licensee's realization that the staff was not prepared to effectively manage an outage of the intended scope.

The licensee has well staffed corporate and plant engineering groups. However, the coordination between the groups with respect to outage planning is an area needing improvement. At the end of the assessment period the full scope of the 1983 outage had not been finalized, and many scheduled outage jobs had not been reviewed for availability or procurement of needed material.

Previous deficiences were noted with coordination of system turnover after modification, training of operators on modifications, and updates of system drawings and procedures. Recent changes in the organization and administrative programs should provide for more formal and effective control in this area. The effectiveness of these programs will be assessed as the outage progresses.

Conclusion - Category 2

Board Recommendations - Because of the extensive outage activities scheduled, a region based Readiness Assessment Team inspection should be performed prior to completion of pre-operational testing.

9. Licensing

Evaluation in this area is based on review of the licensee's activities in the Systematic Evaluation Program (SEP), Fire Protection review, Core Spray Effectiveness review, Three Mile Island Task Action Plan (NUREG 0737) responses, development of Radiological Effluent Technical Specifications (RETS), and Operator Licensing.

The licensee generally places adequate management attention and involvement in licensing activities with decision making at a level that ensure adequate management review. The licensee demonstrates a clear understanding of the issues and conservatism when safety concerns are involved but, at times, attempts to meet only the minimum requirements.

While the licensee provides generally sound and acceptable resolutions to the issues, frequent time extensions are required. Considerable NRC effort and repeated submittals are needed to adequately cover the material to be reviewed. This was particularly evident with the Fire Protection and RETS submittals. The timeliness of responses was poor in the previous assessment period and continues at about the same pace with a two to three month time delay being the norm. Marginal staffing, particularly in the light of the SEP requirements levied on the licensee, may have contributed to these delays. When the SEP is completed, adequate manpower should be available to perform in a timely manner.

Three sets of operator license examinations were conducted during the appraisal period. Overall, five out of six reactor operators and four out of eight senior reactor operators passed the examination. There has been some indication of a lack of adequate screening of applicants prior to recommending them for an examination. Four SRO candidates failed the licensing examination with low overall scores. One candidate has since passed the examination. Licensee management has taken steps to identify and correct these deficiencies, however, there has not been an adequate number of examinations to evaluate the effectiveness of this action.

Conclusion - Category 2

Board Recommendations - None.

V. SUPPORTING DATA AND SUMMARIES

1. Licensee Event Reports

Tabular Listing

Type of Events:	Unit 1
A. Personnel Error	11
B. Design/Mfg/Constr/Install.	2
C. External Cause	0
D. Defective Procedures	6
E. Component Failures	19
X. Other	25
TOTAL	63

Licensee Event Reports Reviewed

Unit 1: Reports 82-01 through 82-61, 82-63, 82-64

Causal Analysis

a. 8 LER's resulted from instrument drift causing safety system actuation sensors to have setpoints outside of the specified range. This is a recurrent problem which the licensee plans to correct during the 1983 refueling outage by modification of the affected instruments. The LER's in this group are: 82-01, 82-03, 82-07, 82-15, 82-17, 82-24, 82-29, and 82-56.

b. 4 LER's reported loss of stack gas monitoring resulting from electrical trips of the sample pumps. The licensee plans to upgrade the stack gas monitoring system during the 1983 refueling outage. LER's in this group are: 82-30, 82-41, 82-44, and 82-55.

c. 3 LER's involved missed surveillances. They were: 82-08, 82-38, and 82-63.

d. 3 LER's involved degraded offgas isolation capability due to control problems with valve V-7-31. LER's in this group are: 82-15, 82-35, and 82-61.

e. 3 LER's reported failure of valves to pass the containment local leak rate test. They were: 82-14, 82-19, and 82-20.

2. Investigation Activities: None

3. Escalated Enforcement Actions

   a. Civil Penalties

      $40,000 proposed December 1982 for violations involving failure to declare one Isolation Condenser inoperable and improper maintenance and testing on a Torus Vacuum Breaker.

   b. Orders

      April 30, 1982, order to all Licensees modifying 10 CFR 50.48 rule effective date.

   c. Confirmatory Action Letters

      Confirmatory action letter dated February 18, 1982 regarding deficiencies in emergency preparedness identified in the January 1982 appraisal.

4. Management Conferences

April 16, 1982	Onsite to discuss Cycle II SALP
May 4, 1982	Region I to discuss violations involving failure to declare Isolation Condenser inoperable and improper maintenance and testing on torus vacuum breaker.

TABLE 1

TABULAR LISTING OF LERs BY FUNCTIONAL AREA

OYSTER CREEK NUCLEAR GENERATING STATION

Area	Number/Cause Code					Total
1. Plant Operations	6/A		1/D	1/E	2/X	10
2. Radiological Controls				1/E		1
3. Maintenance	4/A	2/B	1/D	15/E	15/X	37
4. Surveillance	1/A		4/D	2/E	7/X	14
5. Fire Protection					1/X	1
6. Emergency Preparedness						
7. Security and Safeguards						
8. Refueling						
9. Licensing Activities						
10. Other						
					TOTAL	63

Cause Codes:

A - Personnel Error
B - Design, Manufacturing, Construction, or Installation Error
C - External Cause
D - Defective Procedures
E - Component Failure
X - Other

TABLE 2

VIOLATIONS (2/1/82 - 1/31/83)

OYSTER CREEK NUCLEAR GENERATING STATION

A. Number and Severity Level of Violations

Severity Level I	0
Severity Level II	0
Severity Level III	2
Severity Level IV	13
Severity Level V	7
Severity Level VI	3
Total	25

B. Violations Vs. Functional Area

FUNCTIONAL AREAS	Severity Levels I	II	III	IV	V	VI
1. Plant Operations				7	2	2
2. Radiological Controls				1	1	
3. Maintenance			1		1	
4. Surveillance				4	1	
5. Fire Protection						
6. Emergency Preparedness			1			
7. Security & Safeguards				1	2	
8. Refueling						
9. Licensing Activities						1
Totals	0	0	2	13	7	3

Total Violations = 25

TABLE 3

INSPECTION HOURS SUMMARY (2/1/82 - 1/31/83)

OYSTER CREEK NUCLEAR GENERATING STATION

	Hours	% OF TIME
1. Plant Operations	971	40
2. Radiological Controls	331	14
3. Maintenance	213	9
4. Surveillance	259	10
5. Fire Protection/Housekeeping	97	4
6. Emergency Preparedness	247	10
7. Security and Safeguards	197	8
8. Refueling	120	5
9. Licensing	No Data Available	
Total	2435	

TABLE 4

INSPECTION REPORT ACTIVITIES

OYSTER CREEK NUCLEAR GENERATING STATION

February 1, 1982 - January 31, 1983

Report No. and Inspection Dates	Inspection Hours	Inspector	Areas Inspected
82-02 1/4/82-3/1/82	36*	Resident	Routine Resident Safety Inspection
82-03 3/2/82-4/5/82	32	Resident	Routine Resident Safety Inspection
82-04 /15/82-3/17/82	246	NRC Team and Resident	Emergency Preparedness and Observation of Annual Emergency Exercise
82-05 /8/82-2/19/82	50	Specialist	Design Changes and Modifications
82-06 /17/82-4/6/82	118	Specialist	Containment Penetration Leakage Test Program and Observation of Primary Containment Integrated Leak Test
82-07 /23/82-4/2/82	38	Specialist	Fire Protection/Prevention Program
82-08 /2/82-3/17/82	22	Resident	Review of Improper Assembly of a Reactor Building To Suppression Chamber Vacuum Breaker
82-09 /6/82-5/3/82	80	Resident	Routine Resident Safety Inspection
82-10 /12/82-4/15/82	27	Specialist	Physical Security
82-11 4/8/82	9	Specialist	Review of Radioactive Contamination of Service Air Piping
82-12 4/16/82	10	- - -	Management Meeting to Discuss SALP Conclusions
82-13 5/4/82	30	- - -	Enforcement Conference to Discuss Findings of Inspections 81-21 and 82-08

* Includes only those inspection hours after February 1, 1982

TABLE 4 (Continued)

R t No. and In..ection Dates	Hours	Inspection Inspector	Areas Inspected
82-14 5/17/82-5/21/82	63	Specialist	Physical Security
82-15 5/24/82-5/28/82	36	Specialist	Training
82-16 5/4/82-6/1/82	66	Resident	Routine Resident Safety Inspection
82-17 5/2/82-7/5/82	115	Resident	Routine Resident Safety Inspection
82-18 7/6/82-8/2/82	83	Resident	Routine Resident Safety Inspection
82-19 3/2/82-8/6/82	60	Specialist	Radiation Protection
82-20 3/3/82-9/7/82	131	Resident	Routine Resident Safety Inspection
82-21 82-9/3/82	158	Specialist	Quality Assurance Program, Design Change and Modification Program, Offsite Support Staff
82-22 /8/82-10/6/82	212	Resident	Routine Resident Safety Inspection
82-23 /14/82-9/17/82	56	Specialist	Environmental Monitoring Program
82-24 /27/82-10/8/82	80	Specialist	Independent Measurements and Radio Chemistry Program
82-25 0/7/82-11/11/82	169	Resident	Routine Resident Safety Inspection
82-26 0/12/82-10/15/82	52	Specialist	Physical Security
82-27 0/20/82-10/22/82	22	Specialist	Special Nuclear Material Control and Accounting
82-28 1/9/82-11/16/82	37	Specialist	Radiation Protection
82-29 1/12/82-12/31/82	234	Resident	Routine Resident Safety Inspection

TABLE 4 (Continued)

Report No. and Inspection Dates	Hours	Inspection Inspector	Areas Inspected
83-01 1/1/83-1/31/83	128	Resident	Routine Resident Safety Inspection
83-02 1/16/83-1/20/83	35	Specialist	Radiation Protection, Followup of Allegation of Lost Neutron Source

ATTACHMENT 1

ENFORCEMENT DATA

OYSTER CREEK NUCLEAR GENERATING STATION

February 1, 1982 - January 31, 1983

INSPECTION NUMBER	SUBJECT	REQ.	SEV.	AREA
82-02	Surveillance controls did not appropriately protect safety features from adverse environmental conditions	10 CFR 50 Appendix B	IV	4
82-02	Failure to follow procedures for vital area access control	T.S.	V	7
82-02	Failure to control vital area keys in accordance with procedures	T.S.	IV	7
82-05	Administrative procedures were not implemented for performance of design changes and modifications	10 CFR 50 Appendix B	VI	1
82-05	Report of facility changes was not submitted for calendar year 1980	10 CFR 50.59	VI	9
82-05	Followup action to audits was not taken	10 CFR 50	VI	1
82-06	No LER was submitted to report identified primary containment degradation	T.S.	IV	4
82-06	Procedures were not properly implemented during performance of containment leak rate testing	T.S.	IV	4
82-08	Failure to maintain containment integrity and vacuum breaker operability when valve misassembly went undetected	T.S.	III	3
82-17	Radioactive liquid was released and was not continuously monitored	T.S.	IV	1
82-18	Failure to follow procedures to protect safety features from adverse environment	T.S.	IV	4
82-18	Procedures as implemented did not adequately confirm system realignment	T.S.	IV	1

ATTACHMENT 1 (Continued)

INSPECTION #	SUBJECT	REQ.	SEV.	AREA
82-20	Failure to follow equipment control procedures when diesel oil heaters were secured	T.S.	V	3
82-20	Procedures were inadequate to assure proper control of a locked high radiation area	T.S.	IV	2
82-22	Isolation Condenser isolation systems were not fully operable when open isolation valves were electrically defeated	T.S.	IV	1
82-23	Environmental air particulate samples were not collected at the proper frequency	T.S.	V	2
82-23	Environmental thermal monitoring system calibrations did not include sensor calibration	T.S.	V	4
82-24	Failure to make adequate gamma spectroscopy measurements of effluent samples	10 CFR 20	IV	1
82-24	Failure to implement chemical and radio-chemical control procedures	T.S.	IV	1
[illegible]4	Radiochemistry procedures used by contractor and vendor laboratories were not reviewed and approved as required.	T.S.	V	1
82-24	Procedures for calibration and operation of a gamma spectrometer were not reviewed and approved	T.S.	V	1
82-25	Failure to follow visitor escort procedures	T.S.	V	7
82-29	Failure to conduct a proper shift turnover	T.S.	IV	1
82-29	Rod Worth Minimizer procedures were inadequate to insure verification of rod withdrawal sequences	T.S.	IV	1
82-36 *	Failure to demonstrate that administrative and physical mears were estaulished to alert the public within the plume exposure pathway	10 CFR 50 Appendix E	III	6

* This enforcement action issued by letter dated February 12, 1982 from Director, Office of Inspection and Enforcement to GPU Nuclear Corporation

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

Enclosure 3

APR 2 9 1983

Docket No. 50-219

GPU Nuclear Corporation
ATTN: Mr. P. B. Fiedler
Vice President and Director
Oyster Creek Nuclear Generating Station
P.O. Box 388
Forked River, New Jersey 08731

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP)

The NRC Region I SALP Board conducted a review on April 19, 1983 to assess the performance of activities associated with the Oyster Creek Nuclear Generating Station. The results of this assessment are documented in the enclosed SALP Board Report. A meeting has been scheduled for 1:00 p.m., May 12, 1983, at the station to provide a forum for candid discussions relating to the performance assessment.

You also should be prepared to discuss any plans to improve performance. Any comments you have regarding the board report may be discussed at this meeting. Additionally, you are requested to provide written comments within 20 days of the meeting.

Following the meeting and receipt of your written comments, the enclosed report, your response, and a summary of our findings and planned actions will be placed in the NRC Public Document Room.

Your cooperation is appreciated.

Sincerely,

Richard W. Starostecki, SALP
Board Chairman
Director, Division of Project and
Resident Programs

Enclosure: As Stated

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Enclosure 3

cc w/enclosure:
P. Clark, Executive Vice President, GPU Nuclear Corporation
NRC Resident Inspector

Enclosure 4

GPU Nuclear

GPU Nuclear
P.O. Box 388
Forked River, New Jersey 08731
609-693-6000
Writer's Direct Dial Number

June 17, 1983

Mr. Richard W. Starostecki,
SALP Board Chairman
Director, Division of Project and
Resident Programs
U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Starostecki:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Systematic Assessment of Licensee
Performance (SALP)

Your letter of April 29, 1983, provided the results of the SALP Board's assessment. In response to your letter and the follow-up meeting of May 12, 1983, where discussions took place regarding the assessment, we submit the following comments in the areas of Plant Operations, Maintenance, and Surveillances.

PLANT OPERATIONS

Three areas identified in the assessment of Plant Operations warrant comments in order to provide additional information regarding our progress to date.

As identified in the assessment, there did exist a backlog of items needing Plant Operations Review Committee (PORC) attention. The backlog was in fact due to the large number of modifications scheduled for the refueling outage and our procedure upgrade program. That backlog has now been eliminated.

With regard to control of design changes and modifications, the assessment pointed out that we were undergoing a major reorganization in the Maintenance and Construction and Technical Functions Divisions; and as a result, the necessary interfaces between various corporate divisions and the plant staff had not been formalized in administrative procedures. Management attention in this area enabled us to formalize the controls necessary prior to the start of our refueling outage. The procedural systems are now in place and functioning.

We recognized in early 1982 that our radiochemistry program needed upgrading. At that time we established both short and long term goals to upgrade our program and the goals we established for 1982, were realized. Significant technical expertise has been added to our staff and operational chemistry functions have been transferred to our Plant Operations Department. In addition, technical expertise

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and assistance from corporate headquarters is now being integrated into our program. A Chemistry technician training program is now in effect which includes a minimum of 240 hours/year of formal training. New laboratory equipment has been purchased and a new laboratory will be constructed during this current outage. Negotiations are currently underway with the Union (IBEW) to upgrade entry level requirements for Chemistry Technicians as well as annual requalification for Chemistry Technicians. Continued improvements during 1983 will be realized.

MAINTENANCE

We believe we have obtained our maintenance goals and objectives set forth in our SALP response of last year. The major reorganization of our Maintenance and Construction Division has been effected which resulted in firmly establishing our Work Management System for corrective maintenace and all modification work.

There is a need to improve the quality of work and knowledge of our maintenance personnel, and our efforts will be directed in this area. We intend to upgrade our training programs with more emphasis on work related activities. A training center for maintenance personnel is nearing completion which will allow a greater portion of time to be devoted to hands on training rather than just lectures. In addition, our second line supervisors will take an active part in the training process. Training conducted by our most experienced personnel on plant specific equipment will lessen the amount of rework now required.

SURVEILLANCES

The assessment states, "Procedural inadequacies during the Integrated Leak Rate Test resulted in a valving error that caused radioactive contamination of a portion of the reactor building service air system." The statement is incorrect in that it was not a valving error, but a design error which caused contamination of the service air system.

With regard to the intergrated leak rate test, the procedural deficiencies noted in the assessment have been corrected by thorough procedure review and revisions. In addition, our Startup and Test Department will assist in the next integrated leak rate test which is scheduled prior to startup from our current outage.

The administrative control procedure for the IST program was approved in January of 1983 and became effective in February.

Dialogue provided by the SALP process enables both the NRC and the Licensee to better focus on those areas in need of management attention. If there are any questions regarding our comments please contact me or Mr. Michael Laggart of my staff at (609) 971-4643.

Very truly yours,

Peter B. Fiedler
Vice President and Director
Oyster Creek

PBF:jal

cc: NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

Enclosure 3

JUL 10 1984

No. 50-219

GPU Nuclear Corporation
ATTN: Mr. P. B. Fielder
Vice President and Director
Oyster Creek Nuclear Generating Station
P. O. Box 388
Forked River, New Jersey 08731

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP); Report No. 50-219/84-19

The NRC Region I SALP Board has reviewed and evaluated the performance activities of the Oyster Creek Nuclear Generating Station for the period February 1, 1983 to April 31, 1984. The results are contained in the enclosed report dated June 21, 1984. A meeting to discuss this assessment has been tentatively scheduled for July 16, 1984. The meeting will be held in Forked River, New Jersey near the plant.

The SALP Board concluded that satisfactory or higher levels of performance occurred in all functional areas. It was noted that steady or improved performance had occurred in functional areas with the exception of Security, Outage Technical Support (special assessment area), and Licensing. In the Security area performance had substantially degraded during the first half of the assessment period. However, improvement was noted in the second half after staffing changes were implemented.

With regard to the Outage Technical Support and Licensing assessments, although satisfactory performance was assessed, we are concerned with corporate engineering support provided to the plant in that a number of problems associated with design control, engineering support, and timeliness of responses were noted. Similar problems were noted in the earlier assessment for Three Island Unit No. 1. If uncorrected, these problems could potentially lead to a further degradation in your overall performance. You should be prepared to discuss your efforts to improve the corporate engineering support functions at the meeting.

We had noted improved performance in your 1983 emergency drill over the previous year's drill. However, we do not believe this improving trend was continued into the May 10, 1984 drill. Although this latest drill is outside the assessment period, we would like you to be prepared to discuss any improvements you plan for future drills.

The meeting is intended to be a dialogue wherein any comments you may have regarding our report may be discussed. Written responses addressing the above areas are requested within 30 days of the meeting.

OFFICIAL RECORD COPY 50-219SALP84 - 0001.0.0
06/07/84

Your cooperation is appreciated.

Sincerely,

Original Signed By:

Richard W. Starostecki, SALP
Board Chairman
Division of Project and
Resident Programs

Enclosure: As Stated

cc w/encls:
BWR Licensing Manager
Licensing Manager, Oyster Creek
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of New Jersey

bcc w/encl:
Region I Docket Room (with concurrences)
Senior Operations Officer (w/o encls)
DPRP Section Chief
SALP Board Members
NRC Resident Inspector, TMI-1

RI:DPRP	RI:DPRP	RI:DPRP
Cowgill/meo	Conner	Starostecki
6/15/84	6/22/84	7/10/84

Report No. 50-219/84-19

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

GPU NUCLEAR CORPORATION

OYSTER CREEK NUCLEAR GENERATING STATION

JUNE 21, 1984

TABLE OF CONTENTS

TABLES

1.0 INTRODUCTION

1.1 Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect the available observations on an annual basis and evaluate licensee performance based on those observations with the objectives of improving the NRC Regulatory Program and Licensee performance.

The assessment period is February 1, 1983 to April 30, 1984.

1.2 SALP Board Members:

R. Starostecki, Director, Division of Project and Resident Programs
R. Vollmer, Director, Division of Engineering, NRR
R. Bellamy, Chief, Radiological Protection Branch, Division of Engineering and Technical Programs.
S. Ebneter, Chief, Engineering Programs Branch, Division of Engineering and Technical Programs.
J. Joyner, Chief, Nuclear Materials and Safeguards Branch, DETP
F. Miraglia, Assistant Director for Safety Assessment, Division of Licensing, NRR
J. Lombardo, Licensing Project Manager, Operating Reactor Branch No. 5, Division of Licensing, Office of NRR
E. Conner, Section Chief, Section 3B, Division of Project and Resident Programs
C. Cowgill, Senior Resident Inspector, Oyster Creek Nuclear Generating Station.

Other Attendees: J. Wechselberger, Resident Inspector, Oyster Creek Nuclear Generating Station.

1.3 Background

(1) Licensee Activities

At the beginning of the assessment period, the facility was operating at 239 MWe with load limited by core reactivity. The reactor was shutdown February 12, 1983 for the planned 1983 refueling and maintenance outage and has remained shutdown for this outage during the entire assessment period.

During the outage, 75 major modifications were scheduled for accomplishment. As of the end of the evaluation period, over 5000 individual maintenance activities have been completed. Some of the significant modifications and repair activities completed were:

- Repair of cracks in recirculation valve discs;
- Recirculation pump seal replacement;
- Feedwater system valve repairs;
- Reactor Protection System HFA relay replacement;
- Scram discharge volume modifications;
- Installation of plant computer and emergency response facility data system;
- Construction of site building for Technical Support Center;
- Torus modifications and painting;
- Installation of post accident sampling system and chemistry laboratory expansion;
- Intermediate range monitor range expansion (10 ranges);
- Addition of new cable spreading room; and
- Turbine inspection.

The licensee inspection of the core spray sparger and vessel annulus was completed in March 1983. The reactor recirculation piping was completed during the month of July 1983. No cracking identified in either system.

The licensee satisfactorily completed an annual emergency plan exercise on May 24, 1983. The exercise was observed by a Region I inspection team.

On June 6, 1983, an unusual event was declared when a chlorine leak occurred in the plant's chlorination system. The leak was isolated in eleven minutes. The unusual event was terminated following the satisfactory accountability of station personnel.

A fire occurred in the step down transformer for substation bus "A" on November 14, 1983. This resulted in a complete loss of offsite power. The fire brigade and local fire companies responded. The potential transformer was replaced and the electric plant was placed in a normal shutdown lineup.

An Intermediate Range Monitor (IRM) dry tube was discovered to be cracked in February. Additional inspection found a total of 8 dry tubes (7 IRM and 1 SRM) to be cracked. The facility has formulated replacement plans to be conducted prior to restart.

Twenty-seven crack indications have been found in the condensate and steam lines outside the dyrwell for the two isolation condensers. An inspection of the piping was conducted by the licensee as a result of discovering a leak in a condensate line during a system hydrostatic test. The licensee repair plans include pipe replacement and weld overlaying. These repairs will be completed prior to plant restart.

(2) Inspection Activities

A Senior Resident Inspector was assigned to the site for the entire assessment period. A second Resident Inspector was on site from February 1 to September 1, 1983 and since January 1, 1984.

Two team inspections were performed during the evaluation period. One team reviewed licensee actions in response to two consultant reports (BETA and RHR) and the 1982 INPO evaluation. A second team evaluated readiness for operations following the long refueling and maintenance outage. This team reviewed the modification process used to control outage work.

The total NRC Region I inspection hours (resident and region-based) for this assessment period is 3,643 hours.

2.0 SUMMARY OF RESULTS

OYSTER CREEK NUCLEAR GENERATING STATION

FUNCTIONAL AREAS	CATEGORY 1	CATEGORY 2	CATEGORY 3
1. Plant Operations and Outage Control	X		
2. Radiological Controls • Radiation Protection • Radioactive Waste Management • Transportation • Effluent Control and Monitoring	X		
3. Maintenance		X	
4. Surveillance (Including Inservice and Preoperational Testing)	X		
5. Fire Protection and Housekeeping		X	
6. Emergency Preparedness		X	
7. Security and Safeguards		X	
8. Outage Technical Support		X	
9. Licensing Activities		X	

Overall Assessment

This assessment is based on licensee performance during an extended refueling and modification outage. Major efforts were expanded by the licensee to upgrade plant equipment as well as perform modifications to plant systems. During the outage, about 75 modifications and over 5000 corrective maintenance items were performed in addition to required testing and inspection. Many nonroutine evolutions were performed and evaluation of these evolutions showed involvement by all site organizations including QA and QC. Overall activities were conducted in a technically competent manner.

In the area of Design Control a number of interface problems between the licensee and contract architect engineers were identified that had the potential for final designs to be inadequate. Additionally, constructability reviews during design needs improvement.

Overall, the licensee is devoting considerable resources to improve performance in all areas evaluated. Continued management attention to identifying and correcting weaknesses is apparent. Management commitment to safety is evident from commitment to training and high regard for stringent procedural adherence.

3.0 CRITERIA

The following performance aspects were reviewed in each area:

- Management involvement in assuring quality.
- Resolving technical issues from a safety viewpoint
- Responsiveness to NRC initiatives.
- Enforcement history.
- Reporting and analysis of reportable events.
- Staffing (including management).
- Training effectiveness and qualification.

To provide a consistent evaluation of licensee performance, attributes relating each aspect to the characteristics of Category 1, 2, and 3 performance were applied as discussed in NRC Manual Chapter 0516, Part II and Table 1.

The SALP Board conclusions were categorized as follows:

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 is being achieved.

Category 2: NRC attention should be maintained at normal levels. Licensee management attention and involvement in nuclear safety are evident; licensee resources are adequate and reasonably effective such that satisfactory performance with respect to operational safety is being achieved.

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 strained or not effectively used such that minimally satisfactory performance with respect to operational safety is being achieved.

4.0 PERFORMANCE ANALYSIS

4.1 Plant Operations and Outage Control (21%)

This assessment is based on inspection of plant operation activities by the resident inspectors and region based inspectors. The inspectors reviewed compliance with technical specification requirements, training requirements, quality assurance audits, corrective action systems, safety review committee actions, and reporting system controls.

Management control of the outage throughout this assessment has been very good. There was continued evidence of management involvement in daily plant activities including daily control room tours by operations and support group managers, daily meetings involving operations, maintenance, and engineering department representatives, and publication of planned activities (three day periods). Observation of shift turnovers indicated that even during periods of relatively low operational activity shift turnovers were thorough, comprehensive and professional. Additionally, site quality assurance reviewed all ongoing activities in the operations areas.

The licensee has well established policies governing plant operations. These policies were widely distributed and generally well understood by plant operators and supervisors. Managements approach to activities was generally conservative and strongly safety oriented.

Control of outage activities was enhanced by the issuance of a daily plan of activities and close coordination of the various departments activities by a daily outage meeting. Senior management involvement was evident in this process through the approval of all daily activity plans. Although overall control of activities was acceptable there were significant interface problems early in the outage including, in some cases, inadequate job planning. Coordination improved as the outage progressed but interfacing between departments continued to be one of the most significant outage problems. However, no resultant safety problems were identified.

Many operational activities conducted during the assessment period were in support of major outage activities. In most cases, these activities were nonroutine and were governed by special procedures written specifically for that activity. Examples include reactor vessel draining and refilling, and refueling the reactor vessel with the suppression pool empty. The procedures were conservative, had received thorough management review and required the performance of periodic management checks at critical stages. The licensee performed a formal refueling certification prior to start of reactor vessel refueling. The inspector's review of this certification showed it to be comprehensive and properly reviewed by the licensee.

Control of refueling activities has been good. Core off load was observed by the NRC and procedures were judged to be comprehensive and conservative. The inspector observed good supervisory control. Observations of new fuel inspections showed that persons performing the inspections were thorough, knowledgeable and conservative. One problem associated with fuel movement occurred when a fuel bundle was dropped a few feet to the bottom of the fuel storage pool rack. Licensee corrective actions included placing a camera on the fueling grapple to insure proper latching of the bundles. The inspection of fuel loading activities showed that personnel were well trained and properly supervised.

The licensee's response to abnormal conditions has been excellent. Early in the assessment period a chlorine leak resulted in declaration of an unusual event. Operator and station management response was prompt and thorough. In November during a loss of offsite power, the licensee's response demonstrated [illegible]ir safety orientation and senior management involvement in site problems.

The Plant Operations Review Committee has been effective in reviewing safety issues. During the previous assessment period, a large backlog of items needing review was identified. The licensee augmented the review committee and conducted daily reviews until the backlog was reduced. Recent changes to the technical specifications have changed the review process and should help reduce future problems in this area. An additional technical specification change, involving the requirement to review temporary procedure changes within 14 days will require continued licensee attention since significantly more time than this has been required in some cases.

Licensee procedural control is acceptable. Inspector reviews showed that procedures are generally technically adequate and are capable of being performed as written. Some inadequacies have been identified by both licensee and NRC inspections involving missing valves in system valve checkoff lists. The missing valves were principally vent and drain valves. The licensee had, prior to NRC identification of the above problem, initiated a complete review of plant systems to verify accuracy of system components and drawings. This program includes verifying as built conditions for both mechanical and electrical systems and then correcting system checkoff lists. The program is scheduled to be completed by February 1985. One problem remains with regard to central control and accountability of temporary changes to procedures. Current procedures require that a log of temporary changes that are also to be made a permanent change be maintained in the control room. The inspector found no method of assuring that such temporary changes are maintained in a central location. Management attention to solve this problem was requested at the exit meeting.

Site Engineering support was well organized and adequately staffed. Engineering requests, from other groups were prioritized and tracked.

The inspector found that engineering evaluations were thorough and in most cases timely. Corporate plant engineering interfaces appear adequate but still require more coordination. The technical content of Licensee Event Reports (LER) continues to be excellent with good narrative descriptions, documentation of cause descriptions, and root cause determinations. Corrective actions are considered appropriate and well described. Timeliness of LER's continues to be a problem. A number of LERs have been submitted late and in some cases, extended periods of time pass before the decision is made that an event is reportable. Management attention to improve timeliness is necessary.

Site training programs for general employee access, operator training and engineering personnel were well established programs. The licensee expended considerable effort to upgrade all of the above programs. In particular site engineering personnel received significant system training. Also, operator requalification training has been upgraded as a result of the poor results achieved on the most recent licensee annual requalification examination.

Operator training for initial NRC licensee examinations has improved with 13 of 15 candidates for RO or SRO licenses passing during the reporting period. NRC examiners have been especially impressed with some SRO candidate performances on oral examinations. These examples demonstrate strong management support and attention to training and qualification.

Summary

During this assessment period, continued improvement has been observed in management control and review of operations function and site training activities. Substantial improvement has been noted in the chemistry area. Control of temporary changes and timeliness of event reporting continues to be a problem.

Conclusion

Category 1

Board Recommendations

Due to the length of the current outage, the Board recommends augment inspection coverage during plant startup. Maintain 16 hour coverage for about 4 weeks after startup. Return to normal coverage after that time.

4.2 Radiological Controls (9%)

There were seven routine inspections by radiation protection specialists during the assessment period. The Resident Inspectors on a continuing basis reviewed selected program areas. Two severity V violations were identified: one in effluent monitoring and one involving transportation. A continuing trend of improvement in the overall radiation safety program was noted this period. Significant improvements have been noted in plant chemistry.

4.2.1 Radiation Protection

The licensees performance during the refueling outage has been commendable. For instances, the use of a specially designed containments to enclose contaminated components on the refueling floor greatly improved contamination control allowing access into this area in street clothes. A training program has been developed for workers who install these containments as well as for personnel who work inside the enclosures. Similar uses of containments during routine operation has allowed a gradual reduction of the square footage of contaminated area in the plant.

All managers within the Radiological Controls (RC) Department are permanent GPUN employees. Contractor personnel are used for a limited number of technician and technician supervisor positions. Job descriptions and delineation of responsibilities is clear. The organization has been stable with minimal turnover and no reorganization. Within the RC Department the responsiveness to NRC initiatives has been prompt and thorough.

The Operational Health Physics technicians play a key role in the control of work during the outage. Their excellent performance is the result of extensive training and qualification provided on the site. Each technician must complete a program that is similar to a licensed position, i.e., classroom instruction, practical factors, written exams, oral exams and experience prerequisites.

Radiological engineering reviews all "unusual incidents" (Internal report of events involving radiological controls). Each incident report resolution receives senior level management concurrence. Enforcement of radiological controls is strict and violations usually result in strong disciplinary action.

The inspectors found that the training of Support Technicians, those who perform whole body counts, issue dosimetry, and test respirator users, was not formalized. The licensee has subsequently developed a program and standardized it throughout the GPUN system.

Several minor problems were noted with radiation protection procedures. These findings were considered to be isolated and not indicative of a programmatic problems.

4.2.2 Radioactive Waste Management

Examination of the licensee's plans for implementation of land disposal of radioactive waste regulations indicated that the licensee has a clear understanding of the requirements of the new regulatory requirements (10 CFR 61). The licensees implementation was timely and technically sound.

4.2.3 Transportation

The licensee has implemented a strong radioactive transport management organization. Procedures clearly define responsibilities and authorities of the Manager-Radwaste Operations and the Radwaste Shipping Supervisor. In addition, the responsibilities of other support groups are specified.

One transportation violation was identified involving failure to verify that the drain line and access plugs of a shipping cask were appropriately plugged and sealed prior to transport. The licensee immediately obtained confirmation that the package drain line and access plugs had been in compliance and implemented corrective actions to assure that future shipments would be in compliance. This violation was not considered indicative of programmatic defects.

A defined program of comprehensive training to key personnel involved in the transfer, packaging and transport of radioactive material is implemented as required. The review of the program indicates that the licensee is implementing a generally adequate and effective Radioactive Transportation Program.

4.2.4 Effluent Monitoring and Controls

Compared to the last assessment, the radio chemistry program has significantly improved. A new chemistry manager has been onsite for the entire evaluation period. Several additional persons have been added to the chemistry staff that have significant experience in radio chemistry. During this period, the licensee has revised all procedures and added internal laboratory QC controls. Significant improvements have been made in chemistry training and qualification. The licensee is constructing a new chemistry laboratory that should be in operation by October 1, 1984. On a quarterly basis, chemistry management now internally audits its own program in addition to the normal Quality Assurance division audits.

On two occasions, required sampling was not performed due to the controlling procedure failing to identify all Technical Specification required analyses. This was judged to be an isolated instance in an otherwise excellent program. There were five Licensee Event Reports (LER) concerning failure of the Standby Gas Treatment System (SGTS). Two failures were the result of design deficiency, one involved broken equipment, one involved improper post-maintenance testing and one failure involved a trip of one train of the SGTS sample pump while the other train was inoperable. Increased attention should be given to the overall integrity of the SGTS.

An LER was issued to report a January 1983 malfunction of a Chemical Waste Storage Tank level instrumentation which caused an unmonitored release of radioactive water outside the New Radwaste Building. The corrective actions, including periodic testing, seem adequate to prevent recurrence.

An overall improvement in the management of the radwaste area including chemistry was observed. New personnel have been hired to fill vacancies. There is adequate staff with clearly delineated responsibilities. Necessary data was available for evaluation of the program. Corrective actions, where necessary, were timely and acceptable. This was also observed in the transportation area during the November inspection. The licensee is attempting to improve the program and correct deficiencies.

Conclusion

Category 1

Board Recommendations

Following restart from the current refueling outage, return to routine inspection.

4.3 Maintenance (9%)

Inspection of maintenance activities during the outage consists of reviews by the residents primarily of inspection, overhaul and general improvement of the plant. Two specialist inspections reviewed maintenance activities when the refueling outage was just beginning. In addition, this area was reviewed during a team inspection late in the evaluation period.

Maintenance at Oyster Creek is performed by the Maintenance and Construction (M&C) Division which reports to a vice president at the corporate office. All maintenance personnel report to that division. Maintenance is requested by the Plant Division and reviewed for necessity and consistency by the Plant Materiel department. This provides plant operations oriented review, approval, and control of maintenance activities and schedules. The organizational structure with its many interfaces requires close coordination between plant operations, plant engineering and maintenance and construction. While some improvements have been made to improve communications at the organizational interfaces, continual improvement in this area is necessary.

Administrative controls over maintenance were well established and contain provisions for prioritization depending on the activities complexity and urgency. Priorities were initially assigned by the initiator but were reviewed by both Plant Operations and Plant Materiel management. This assures proper prioritization and planning. In addition, the licensee established a procedure for performance and control of urgent work identified during off-normal hours. Daily meetings were conducted during the current refueling outage with both maintenance and representatives from all site organizations to coordinate activities. These meetings appear to be beneficial in keeping management appraised of on-going work. Procurement of safety related equipment was well controlled and documented. One minor violation regarding chemistry resins was identified but is not considered indicative of a program breakdown. Although procurement is acceptable, no current component level quality classification list exists. A licensee group has been formed to resolve this problem. Continued management attention in this area was evident by the numerous levels of review by both plant engineering and quality assurance.

Preventive maintenance (PM) is controlled by a separate group within Plant Materiel Department. Administrative controls are well defined and provide acceptable controls for the conduct of the program. The program is scheduled on both a yearly and weekly basis. NRC review identified that the schedules are comprehensive, reviewed frequently, and accurately reflect the status of the PM program. Checklists were technically accurate and periodically updated to reflect new information. PM tasks were performed by a dedicated group of technicians rotated periodically detailed from the M&C Department. One area associated with preventive maintenance requires some increased attention

When performing preventive maintenance work when engineering evaluation was required, plant engineering work requests were initiated to obtain that information. NRC observations indicate that once the information was requested, there was little followup by plant materiel to ensure timely response. This needs continued management attention.

There was evidence of routine involvement by QA in maintenance activities through post maintenance quality reviews, quality control hold and witness points of work in progress, quality assurance department observations of various maintenance activities.

The Plant Materiel Department reviews all completed maintenance work packages and has begun a trend analysis program. An initial review was performed by electrical maintenance. Their review was thorough and had substantive recommendations for improvements. NRC review indicates that recommendations had been appropriately acted upon. This was positive evidence of licensees aggressive approach to solving problems. Further improvements will be made when the review process is expanded to mechanical systems. Increasing senior management involvement in the recommended corrective actions is expected.

Five LER's, associated with electrical breaker maintenance problems, appear to be a relatively high number for this function. This data indicates the need for additional licensee attention in this area. Another LER involved identification of problems with torque switch settings on limitorque valves. This problem, identified by licensee personnel, was based on information received at a maintenance conference. Identification of this problem demonstrates sound technical analysis and aggressive corrective action. Additionally, the licensee has informed other utilities of the potentially generic nature of the problem prior to issuance of NRC documents.

Conclusion

Category 2

Board Recommendations

None.

4.4 Surveillance (15%)

This assessment is based on inspections of the surveillance program by the resident inspectors and by region based inspectors (four inspections of ISI activities).

The licensee controls the routine surveillance test program through issuance of annual master surveillance test schedules. They have administrative controls in place to modify surveillance tests as required by plant conditions and changes to Technical Specifications. Management involvement in review of both test schedules and test results is evident. During this evaluation period, one problem was identified regarding acceptance criteria for a fire pump. Licensee management used this opportunity to review all surveillance tests to ensure technical adequacy and compliance with Technical Specifications. The inspector found surveillance procedures technically adequate, tests conducted on time and results receive proper reviews. The plant engineering staff, responsible for maintaining status of complete surveillances, fell behind in record keeping. This was corrected by reassigning reviews and increasing senior management review. Additionally, the licensee foresees significant improvements when the plan to computerize the surveillance test program is completed.

Successful accomplishment of the leak rate testing program had been a problem in the previous assessment. Inspector review during this period indicates significant improvement. Observations indicate that test procedures have been reviewed and upgraded and the personnel performing tests were knowledgeable of test requirements. Review of the completed test results was performed timely and thoroughly.

Management oversight of the Inservice Inspection and Inservice Test programs appears strong. Administrative controls were found to be well developed including scheduling of activities and assigning proper authority and responsibility for program accomplishments. Appropriate feedback mechanisms were in in place to monitor program performance. Appropriate QA interfaces were evident and technician training was good.

During this outage, significant inservice testing and inspection has been conducted as discussed further in Section 4.8.

Conclusion

Category 1

Board Recommendation

None.

4.5 Fire Protection and Housekeeping (2.5%)

The assessment of performance in the fire protection and housekeeping areas are based on inspections by the resident inspectors.

Site fire protection activities are supervised by a full-time assigned individual with responsibility for overall program accomplishment. A dedicated staff is assigned to conduct preventive maintenance and surveillance testing of fire fighting equipment to ensure centralized control of these activities.

The licensee has established a comprehensive fire protection training program. A review of this program identified implementation problems regarding lecture attendance and timely makeup of missed lectures by the fire brigade members. Licensee corrective action for this problem included requiring all brigade personnel to attend scheduled or makeup lectures and to take examinations to ensure that training was adequate.

There has been considerable effort by both NRC and the licensee to attempt to resolve issues involved with fire protection regulations (10 CFR 50, Appendix R). Currently, the licensee has requested 19 technical exemptions and 13 schedular exemptions to these requirements. These requests are presently under review by NRR.

The licensee has continued to exert significant management attention to housekeeping during this assessment period with the plant in a major refueling and modification outage. Routine tours are made by senior station management to identify and correct housekeeping problems. When conditions became degraded, management has taken aggressive action to improve housekeeping including one occasion when all outage related work was stopped for three days to perform plant cleanup. Although continued emphasis is placed on housekeeping, general worker attitude in this area remains somewhat low.

Radiological housekeeping was viewed to be adequate considering the activity in the plant. Continued attention to contamination control is evidenced by the efforts to decontaminate areas as soon as practicable after completion of activities causing the area contamination. There remains certain contaminated and high radiation areas that require continued attention.

Conclusion

Category 2

Board Recommendations

None.

4.6 Emergency Preparedness (18%)

Analysis in this area is based on observation of the Annual Exercise by the NRC team, three followup inspections by region based inspectors, and observations of plant training exercises by the resident inspectors.

During the annual exercise on May 10, 1983, the licensee demonstrated adequate capability to perform a complicated simulated plant emergency. Although NRC observation of this exercise identified that a substantial improvement was made over the 1982 exercise, a number of deficiencies (most of which were also identified by the licensee) were noted in operational assessment, training, scenario preparation, information flow, dose assessment, and radiation protection evaluation. Continued senior level management attention to emergency planning is evident in that a full time manager is assigned at the site with sufficient staff support. Licensee maintains a three section emergency response rotation and conducts periodic shift and site drills to maintain personnel proficiency between annual exercises. During this evaluation period, specific training was conducted for senior level managers in accident assessment.

The emergency plan and procedures continue to be adequate. Licensee has put forth a large effort to revised emergency procedures to streamline them. One example is a proposed shift of classification of emergency to symptom based approach to conform with emergency operating procedures used by Operations Department personnel.

A number of items remain open (principally associated with Post Accident Sampling Systems) from the emergency appraisal conducted in January, 1982. Licensee progress towards correction of the remaining items is satisfactory. During this assessment, the licensee committed to complete the post-accident sampling system prior to October of 1984. Additionally, a new Technical Support Center is being constructed and will be available about September 1, 1984.

The improved performance noted in 1983 over the 1982 drill was not continued in the licensee's performance of the May 10, 1984 exercise. Although outside this assessment period, deficiencies in communication, EOF environmental data coordination and presentation, and licensee/external agency interfaces were noted.

Conclusion

Category 2

Board Recommendation

None.

4.7 Security and Safeguards (1.5%)

One regional physical protection inspection and routine resident inspections during the first half of the assessment period identified a total of six physical security violations (including one Severity Level III violation for which a civil penalty was assessed). The violations and other deviations reflected a lack of adequate management attention to implementation of security program requirements and first line supervisory performance. The need for increased management attention to preparation for the major modification and refueling outage work coupled with a marginal audit/surveillance program in the physical security area may have contributed to the program's degradation. An enforcement conference was held in April 1983 to discuss the problem. The licensee's corrective action, which included a reorganization of onsite and corporate security management to effect more direct management involvement in the program and an improved quality assurance auditing program in the security area, was prompt and appears to have been effective. Subsequent routine resident inspections and a regional physical security inspection identified no violations during the second half of the assessment period. However, a deviation from the licensee's commitment to correct one of the previous violations by July 1983 was cited in August 1983. The corrective action was completed later that month.

The training and qualification program resulted in a satisfactory level of job knowledge and adherence to procedures in most cases. It is well defined and carried out by dedicated personnel. The security force staffing level was adequate throughout the period, especially considering the increase in the normal work force as a result of the outage. The position of Site Security Supervisor, which had been filled in about January 1983, was left vacant in July 1983 by the death of the incumbent. The position was again filled in September 1983 by a very qualified and experienced individual. This is indicative of the licensee's resolve to improve their performance in this area.

Analyses and reporting of events are complete and prompt as are corrective actions. Seven event reports were submitted during the assessment period.

Conclusion

Category 2

Board Recommendations

None.

4.8 Outage Technical Support (24%)

Assessment in this area is based on region based and resident inspector review of outage work and a team inspection of the licensee's modification process, performed at the end of the assessment period.

During this outage, significant inservice testing and inspection has been conducted. Licensee management attention in this program was evident as demonstrated by corporate requalification of all contract personnel used to perform testing and use of licensee personnel to supervise and perform final reviews of test data. The overall performance of inservice testing was satisfactory.

The licensee performed NDE testing on recirculation system piping for intergranular stress corrosion cracking. During Region I review of this testing, a number of problems with licensee's plotting and evaluation of test data was found. Additionally, the testing was not adequate to determine whether any cracking was present. After conversations and meetings between NRC and Senior Management, the licensee performed additional data evaluation and testing. No crack indications were identified during these activities. Late in the period, similar NDE testing on isolation condenser piping was performed. NRC review of test results identified substantial improvement in data reduction and evaluation.

Major modifications were made during the outage to upgrade plant design and meet new regulatory requirements. Several modifications such as complete replacement of all control room alarm panels were installed to aid operator performance. NRC review of licensee control of the modification process has shown a conservative approach to the resolution of technical issues. Administrative controls associated with modification, construction, testing, and plant staff acceptance are good.

The licensee's system for implementation of planned modifications is adequate. Modifications installation is performed under the control of Maintenance and Construction Division (M&C). Significant portions of the work is then performed by contract organizations. Appropriate QC hold and witness points are inserted in installation procedures and quality assurance observation of activities in progress are routinely observed. Inspector observations did, however, identify problems associated with construction in the areas of procedure change control, welding, and hanger installation associated with Appendix J and Scram Discharge Volume Modifications. Licensee resolution of these concerns is not complete at the end of this assessment period.

Although general control of the modification process has been acceptable, a number of problems associated with design control of modifications has been observed. The licensee's Technical Functions Division has not always advised contractor architect engineers of changes to propose modifications being designed by the contractor. This led to some inadequate review of design changes. In some cases changes were made to contractor design packages without review by the original designer. The licensee initiated a review by corporate QA, at NRC request, to determine if outage modifications meet design criteria. The results of this review will be evaluated by NRC Region I in the near future. Additionally, during installation, several modifications required a significant number of design changes. Examples included Appendix J modifications and the scram discharge volume modifications. In one cases, a task force was formed to review and solve associated problems with installation. These problems, in many cases were the result of poor constructability reviews by Technical Functions. Additionally, the licensee did not have a limit on the number of design changes that could be made prior to revising the original design document. Although no installation errors have been identified as a result, the potential for installation errors exists.

Conclusion

Category 2

Board Recommendations

The licensee should be requested to address the interface problems that exist between the licensee and contract engineers performing design work. Inspection of followup corrective actions should be planned.

4.9 Licensing

Evaluation in this area is based on review of the licensee's activities in the area of methodology and Cycle 10 reload, Radiological Effluent Technical Specifications (RETS), Core Spray Effectiveness, NUREG-0737 responses, Systematic Evaluation Program (SEP), fire protection review, valve operability, and equipment qualification.

The licensee's performance and management capabilities were generally adequate. The licensee and his contractors have demonstrated good working knowledge of regulatory requirements and excellent levels of technical competence. Management attention and involvement with specific matters of safety is evident. licensee resources are adequate although staffing in various areas should be improved, and satisfactory performance with respect to operational safety is being achieved.

While the licensee provides generally sound and acceptable resolution to the licensing issues, frequent extensions of time are required. Considerable NRC effort and repeated submittals are needed to adequately cover the material to be reviewed. The timeliness of responses was poor with two or three month time delay in responses being the norm. These problems were especially noted in submittals for SEP, RETS, NUREG-0737, TS, and fire protection topics.

Conclusion

Category 2

Board Recommendations

The licensee should be requested to address the adequacy of the corporate engineering support provided to the plant in regards to the content and timeliness of licensing submittals. An adverse trend has been noted, particularly in the areas of SEP and fire protection topics.

5.0 SUPPORTING DATA AND SUMMARIES

5.1 Licensee Event Reports

Tabular Listing	Licensee Event Reports
Type of Events:	
A. Personnel Error	5
B. Design/Man./Const./Install.	7
C. External Cause	0
D. Defective Procedure	2
E. Component Failure	6
X. Other	7
TOTAL	27

Licensee Event Reports Reviewed: 83-01 through 83-26 and 84-01, 02 and 05 excluding Security Event Reports.

Causal Analysis:

Four sets of common mode events were identified:

a. LER's 83-7, 83-15, 83-25, and 83-26 identified events in which incorrect or inadequate procedures contributed to the event.

b. LER's 83-10, 83-12, and 83-14 involved design deficiencies. Two LER's identified deficiencies with the standby gas treatment system.

c. LER's 83-4, 83-8, 83-15, 83-20 and 84-2 involved electrical breaker maintenance problems.

d. LER's 83-6, 83-7, 83-10, 83-11, and 83-14 pertained to the standby gas treatment system. These can be further classified as follows; 2 LER's involved design deficiencies and 2 LER's involved sensing line failures. The relatively large number of problems identified in standby gas treatment may indicate the need for a complete system review.

5.2 Investigation Activities:

None.

5.3 Escalated Enforcement Actions:

a. Civil Penalties - (83-07) $40,000: for violations of the physical security plan.

b. Orders: None.

c. Confirmatory Action Letters: None

5.4 Management Conferences:

Enforcement meeting - 4/18/83: regarding physical security plan violations.

SALP meeting (5/12/83): meeting to discuss Cycle 2 SALP performance.

TABLE 1

TABULAR LISTING OF LERs BY FUNCTIONAL AREA

OYSTER CREEK NUCLEAR GENERATING STATION

AREA	NUMBER/CAUSE CODE					TOTAL
Plant Operation and Outage Control	2A	1B		2E		5
Radiological Controls			1D			1
Maintenance	2A	1B		1E	3X	7
Surveillance		3B	1D	2E	4X	10
Fire Protection						
Emergency Preparedness						
Security and Safeguards						
Outage Technical Support	1A	1B				2
Licensing Activities						
Other		1B		1E		2
				Total		27

Cause Codes:
- A - Personnel Error
- B - Design, Manufacturing, Construction or Installation Error
- C - External Cause
- D - Defective Procedures
- E - Component Failure
- X - Other

TABLE 2

LER SUMMARY

OYSTER CREEK

FEBRUARY 1, 1983 to APRIL 30, 1984

LER NUMBER	SUMMARY DESCRIPTION
83-03/03L	During the performance of maintenance on two "A" control rod drive pump, a vent line was broken. This resulted in the wet-down of a core spray pump and the inadvertent tripping of the "B" control rod drive pump. The "B" pump was immediately restarted.
83-04/03L	Control rod drive pump circuit breaker failure to operate.
83-05/03L	Three high drywell pressure switches tripped at a value greater than specified.
83-06/03L	Low flow switch for standby gas treatment system fan failed preventing system valves from closing.
83-07/03L	Standby gas system declared inoperable due to plugging of HEPA filter. Identified during surveillance testing.
83-07/03X-1	Subsequent evaluation of LER 83-07/03L revealed an improperly installed pitot tube on flow sensing line.
83-08/03L	Core spray booster pump was found to be inoperable due to installation of an incorrect undervoltage trip coil.
83-09/01T	Main steam isolation valves A and B failed to meet local leak rate test acceptance criteria.
83-10/01T	Discovery of a design deficiency in the standby gas treatment system which prevented inlet and outlet valves from closing when the fan breaker is racked out.
83-11/03L	Standby gas treatment system flow switch failed due to a damaged sensing line.
83-12/01T	Violation of secondary containment due to trunnion room door being open identified during refueling surveillance check-off.
83-13/01T	Violation of secondary containment due to both doors of a reactor building personnel access airlock being open for approximately 30 seconds.

LER NUMBER	SUMMARY DESCRIPTION
83-14/01T	Discovery of a design deficiency in the standby gas treatment system. Heating coils for both trains supplied power from same emergency bus.
83-15/03L	Failure of a reactor building closed cooling water circuit breaker due to improper performance of maintenance which incapacitated an undervoltage trip device.
83-16	Not issued.
83-17/01P	Design deficiency in both diesel generator timing relays.
83-18/03L	Reactor building isolation valve failed to close due to air operator dirt blockage.
83-19/03L	Reactor building isolation valve failed to close due to air operator piston break.
83-20/03L	Failure of service water pump circuit breaker due to a burr on the trip latch.
83-21/03L	Failure of power feed from emergency diesel generator due to ground fault on power feed.
83-22/03L	Two mechanical snubbers found to be inoperable during testing.
83-23	Not issued.
83-24/01T	Limitorque motor operator torque switch settings below original settings.
83-25/03L	Six maintenance and two surveillance procedures did not specify verifying excess flow check valves open.
83-26/01T	Fuel pool cooling heat exchangers no longer meet seismic requirements due to addition of lead for shielding.
84-001	Diesel fuel oil level less than technical specification required level.
84-002	Failure of circuit breaker undervoltage trip devices.
84-005	A through-wall crack was discovered on the isolation condenser piping during a system hydrostatic test.

TABLE 3

VIOLATIONS (2/1/83-4/30/84)

OYSTER CREEK NUCLEAR GENERATING STATION

A. Number and Severity Level of Violations

1. Severity Level

Severity Level I	0
Severity Level II	0
Severity Level III	1
Severity Level IV	13
Severity Level V	5
TOTAL	19

B. Violations vs. Functional Area

FUNCTIONAL AREAS	Severity Levels I	II	III	IV	V
Plant Operations					
Radiological Controls					2
Maintenance				1	
Surveillance				1	1
Fire Protection				1	
Emergency Preparedness					
Security and Safeguards			1	6	1
Refueling Outage				4	1
Licensing Activities					
TOTALS			1	13	5

TOTAL VIOLATIONS: 19

TABLE 4

INSPECTION HOURS SUMMARY (2/1/83-4/30/84)

OYSTER CREEK NUCLEAR GENERATING STATION

	HOURS	% OF TIME
Plant Operations	757	21
Radiological Controls	325	9
Maintenance	307	9
Surveillance	535	15
Fire Protection/Housekeeping	90	2.5
Emergency Preparedness	640	18
Security and Safeguards	59	1.5
Refueling	933	24
Licensing	No data available	
TOTAL	3646	

TABLE 5

INSPECTION REPORT ACTIVITIES

OYSTER CREEK NUCLEAR GENERATING STATION

REPORT NO. AND INSPECTION DATES	INSPECTOR	AREA INSPECTED
83-03 2/7/83-2/18/83	Specialist	Emergency Preparedness Items
83-04 2/1/83-3/7/83	Residents	Routine Resident Inspection
83-05 2/14-18,3/1-4, 3/24,3/28,1983	Specialist	ISI Activities
83-06 2/22/83-2/25/83	Specalist	Maintenance, surveillance calibration activities.
83-07 3/14/83-3/17/83	Specialist	Security Plan and Implementing Procedures
83-08 3/8/83-4/4/83	Residents	Routine Resident Inspection
83-09 3/16/83-3/18/83	Specialist	Public Prompt Notification System
83-10 4/6/83-4/8/83	Specialist	Implementation of radiation protection program
83-11 4/5/83-5/2/83	Resident	Routine Resident Inspection
83-12 4/18/83	Specialist	Enforcement Conference Physical Security Program
83-13 5/11/83-5/12/83	Specialist	Design review of plant shielding
83-14 5/3/83-6/8/83	Residents	Routine Resident Inspection

REPORT NO. AND INSPECTION DATES	INSPECTOR	AREAS INSPECTED
83-15 5/23/83-5/25/83	NRC Team and Residents	Emergency Preparedness Inspection
83-16 8/23/83-8/26/83	Specialist	Security System Power Supply/Training/Security
83-17 6/9/83-7/13/83	Residents	Routine Resident Inspection
83-18 7/11/83-7/15/83	Specialist	Effluent control and Radioactive Waste program
83-19 7/12/83-7/15/83	Specialist	Stress corrosion cracking and welding activities
83-20 7/14/83-8/17/83	Residents	Routine Resident Inspection
83-21 7/19,25,26/83	Specialist	Ultrasonic data during weld examinations
83-22 8/18/83-9/21/83	Residents	Routine Resident Inspection
83-23 9/22/83-11/7/83	Resident	Routine Resident Inspection
83-24 10/12,17-21,27/83	Specialist	Review of QA Program, QC Surv, drawings, procedures, instructions and work observ.
83-25 10/17/83-10/21/83	Specialist	Licensee's radiation protection and effluent control program
83-26 11/7/83-12/31/81	Resident	Routine Resident Inspection
83-27 11/29/83-12/2/83	Specialist	Trans. activities - radioactive waste mgmt programs
83-28 12/12-15/83	Specialist	Radioactive waste program

REPORT NO. AND INSPECTION DATES	INSPECTOR	AREAS INSPECTED
84-01 1/1-1/13/84	Resident	Routine
84-02 1/16-20/84	Specialist	Licensee's radiation protection program.
84-03 2/1-3/15/84	Resident	Routine
84-04 2/7-10/84	Specialist	Licensee's inservice inspection program.
84-05 2/21-24/83	Specialist	Emergency preparedness items
84-06 3/12-16/84	Resident/ Specialist (RHR/BETA Team Inspec)	Licensee's organization and program implementation in maintenance, training and procedural controls.
84-07 3/9-10/84	Specialist/ Resident	Inspection of activities associated with torus shell thickness
84-08 3/7/84	Specialist	Radiological control incident review.
84-09 3/26-30/84; 4/2-3/84	Residents/ Specialist	Readiness Assessment Team Inspection of modifications, evaluating the design, construction/installation, inspection, testing and acceptance for operation modifications.
84-10 3/16-4/30/84	Resident/ Specialist	Routine resident inspection and specialist review of isolation condenser cracks.

TABLE 6

ENFORCEMENT DATA

OYSTER CREEK NUCLEAR GENERATING STATION

INSPECTION NUMBER	SUBJECT	REQ.	SEV.	AREA
83-04	Failure to X-ray or physically search hand carrier package brought through a protected area portal.	Provisional operating license DPR-16	IV	7
83-04	Failure to ensure continuous surveil- of an escorted person.	Tech Spec 6.8.1	IV	7
83-04	Failure to ensure material important to safety and traceable quality assur- ance documentation.	10CFR50	IV	3
83-07	Failure to notify the commission of a change to the security plan; failure to maintain an effective protected area barrier; failure to record intrusion alarms.	Accepted Security Plan	III	7
83-07	Failure to observe an isolationzone with CCTV	Accepted Security Plan	IV	7
83-07	Failure to guard and control access to vital areas.	Accepted Security Plan	IV	7
83-07	Failure to maintain a protected area barrier height.	Accepted Security Plan.	V	7
83-08	Violation of physical security plan.	Provisional operating license DPR-16.	IV	7
83-20	Failure of an individual to properly use protective clothing.	Tech. Spec 6.8.1	V	2

INSPECTION NUMBER	SUBJECT	REQ.	SEV.	AREA
83-20	Violation of physical security plar	Provisional operating license DPR-16	IV	7
83-23	Failure to provide hourly fire watch while the fire door between the diesel generator bays were fouled.	Tech Spec	IV	5
83-24	Failure to translate design basis items into specifications, drawings, procedures and instructions.	10CFR50	V	8
83-25	Failure to analyze a monthly liquid effluent discharge batch for tritium.	Tech Spec 4.6.B.2.C	V	4
83-26	Failure of a surveillance procedure to to identify the development of an inadequate pump head pressure.	Tech Spec 6.8.1	IV	4
83-27	Failure to verify drain line and access plugs were properly sealed prior to transport.	10CFR71.12	V	2
84-09	Failure to review design change commensurate with original design; failure to incorporate design changes and regulatory requirements into specification, drawings, procedures and instructions.	10CFR50 APP B	IV	8
84-09	Failure to prescribe and accomplish quality installations.	10CFR50 APP B	IV	8
84-09	Failure to adequately control design information.	10CFR50 APP B	IV	8
84-09	Failure of QC inspections to verify conformance of construction activities.	10CFR50 APP B	IV	8

DEVIATION

83-16	Failure to meet a commitment to the commission concerning physical security.			

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

JUN 16 1982

Docket No. 50-219

GPU Nuclear Corporation
ATTN: Mr. P. R. Clark
Vice President - Nuclear
100 Interpace Parkway
Parsippany, New Jersey 07054

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP) and Management Meeting 50-219/82-12

This refers to the SALP for the Oyster Creek Nuclear Generating Station, conducted by this office on March 29, 1982 and discussed with you and your staff at the subject meeting on April 16, 1982. The report of our meeting is attached as Enclosure 1. The NRC Region I SALP Report is attached as Enclosure 2 and covers the period November 1, 1980 - October 31, 1981. Your letter dated May 6, 1982, which we requested provided comments and commitments for performance improvements and is attached as Enclosure 3.

Overall, we find that your performance of licensed activities generally is acceptable and directed toward safe facility operation. Your performance in the areas of maintenance and surveillance was found to be in need of increased NRC and GPU Nuclear Corporation management attention.

In our meeting of April 16, we discussed our assessment of your regulatory performance in these areas, your comments on the SALP Program and assessment, and the actions that you are taking to improve your performance. We have also reviewed your letter of May 6, and determined that your actions to improve performance in these areas needing attention are responsive. We consider that our meeting was beneficial and improved mutual understanding of your activities and our regulatory program. Based on your comments during our meeting and your May 6 letter, we have found that no changes to our assessment are necessary and therefore we have not supplemented our report. We have, however, made minor editorial and typographical corrections that did not affect our assessment or conclusions. In addition, we made the corrections in evaluation sections 1 (Plant Operations) and 6 (Emergency Preparedness) concerning the title of the Nuclear Assurance Department Operations Support Program and the installation dates for the Public Notification System sirens, which you brought to our attention in your May 6, 1982 letter.

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As Region I does not presently control the issuance of Technical Specification changes, your request that these changes become effective 30 days after receipt by the licensee, rather than upon date of issuance, has been brought to the attention of Oyster Creek Licensing Project Manager in the Office of Nuclear Reactor Regulation, Division of Licensing.

In accordance with 10 CFR 2.790(a), a copy of this letter and its enclosures will be placed in the NRC Public Document Room. No reply to this letter is required. Your actions in response to the NRC Systematic Assessment of Licensee Performance will be reviewed during future inspections of your licensed activities.

Your cooperation is appreciated.

Sincerely,

Ronald C. Haynes

Ronald C. Haynes
Regional Administrator

Enclosures:
1. NRC Region I Meeting Report 50-219/82-12
2. NRC Region I Systematic Assessment of Licensee Performance, Oyster Creek Nuclear Generating Station, March 29, 1982
3. GPU Nuclear Corporation Letter, P. R. Clark (GPU) to R. C. Haynes (NRC Region I), Response to Systematic Assessment of Licensee Performance, May 6, 1982

cc w/encl:
M. Laggart, Licensing Supervisor
J. Knubel, BWR Licensing Manager
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of New Jersey

bcc w/encl:
Region I Docket Room (with concurrences)
Chief, Operational Support Section (w/o encls)
L. Tripp
R. Keimig
R. C. Lewis, Director, DPRP, Region II
P. L. Spessard, Director, DPRP, Region III
J. E. Gagliardo, Acting Director, DVTP, Region IV
J. L. Crews, Director, DRRRP&EP, Region V
J. J. Lombardo, Oyster Creek LPM, NRR
Resident Sites

IE01

ENCLOSURE 1

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-219/82-12

Docket No. 50-219

License No. DPR-16 Priority -- Category --

Licensee: GPU Nuclear Corporation
P.O. Box 388
Forked River, New Jersey

Facility Name: Oyster Creek Nuclear Generating Station

Meeting at: Forked River, New Jersey

Meeting conducted: April 16, 1982

NRC Personnel: [signature] for 5/25/82
J. A. Thomas, Resident Inspector date signed

Approved by: [signature] for 5/25/82
L. E. Tripp, Chief, Reactor Projects Section 2A date signed

Meeting Summary:
Meeting on April 16, 1982 (Meeting Report No. 50-219/82-12)
Scope: Special management meeting to discuss the results of the NRC Region I assessment of the licensee's performance from November 1, 1980 to October 31, 1981, as part of the NRC's Systematic Assessment of Licensee Performance (SALP) program. Areas addressed included: Plant Operations, Radiological Controls, Maintenance, Surveillance, Fire Protection, Emergency Preparedness, Security and Safeguards, Refueling, and Licensing activities.
Results: A summary of the NRC licensee performance assessment was presented. No new enforcement actions were identified.

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DETAILS

1. Licensee Attendees

M. Budaj, Manager, Special Projects
J. Carroll, Jr., Director, Station Operations
P. Clark, Executive Vice President
R. Fenton, Supervisor, Emergency Preparedness
K. Fickeissen, Plant Engineering Director
P. Fiedler, Vice President and Director, Oyster Creek
J. Frew, Plant Maintenance
D. Gaines, Manager, Plant Administration
W. Garvey, Manager, Plant Administration
D. Grace, Manager, Oyster Creek Engineering Projects
D. Klucsik, Communications
J. Knubel, BWR Licensing Manager
M. Laggart, Licensing Supervisor
J. Maloney, Manager, Plant Maintenance
R. Markowski, Site Audit Manager
J. Riggar, Security Supervisor
J. Sullivan, Jr., Plant Operations Director
C. Tracy, Manager, Quality Assurance, Mod/Ops
D. Turner, Manager, Radiological Controls

2. NRC Attendees

J. Allan, Deputy Regional Administrator, Region I
C. Cowgill, Senior Resident Inspector, Peach Bottom
R. Keimig, Chief, Reactor Projects Branch 2, Division of Project and Resident Programs, Region I
J. Lombardo, Licensing Project Manager, NRR
R. Starostecki, Director, Division of Project and Resident Programs, (DPRP), Region I
J. Thomas, Resident Inspector, Oyster Creek
L. Tripp, Chief, Reactor Projects Section 2A, DPRP

3. Discussion

A brief summary of the Systematic Assessment of Licensee Performance (SALP) program was presented to explain the basis and purpose of the program.

The NRC Region I assessment was discussed, including the assessment period, evaluation topics and methods, and assessment results. The licensee discussed actions taken and planned to continue performance improvements and address weaknesses.

The SALP assessment report and your May 6, 1982 letter which we requested in our April 7, 1982 letter in response to that report is also enclosed with this transmittal.

ENCLOSURE 2

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

GPU NUCLEAR CORPORATION

OYSTER CREEK NUCLEAR GENERATING STATION

March 29, 1982

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TABLES

I. INTRODUCTION

a. Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect the available observations on an annual basis and evaluate licensee performance based on those observations with the objectives of improving the NRC Regulatory Program and Licensee performance.

The assessment period is November 1, 1980 through October 31, 1981. This assessment, however, contains pertinent observations and NRC and licensee activities through March, 1982. Future assessment periods will be adjusted to provide more timely NRC assessment and reporting.

The prior SALP assessment period was August 1, 1979 - July 31, 1980. Significant findings of that assessment and the period between that assessment and this assessment, are provided in the applicable Performance Analysis Functional Areas (Section IV).

Evaluation criteria used during this assessment are discussed in Section III below. Each criterion was applied using the "Attributes for Assessment of Licensee Performance" contained in NRC Manual Chapter 0516.

b. SALP Attendees:

R. W. Starostecki, Director, Division of Project and Resident Programs
J. H. Joyner, Chief, Technical Programs Branch, Division of Engineering and Technical Programs
W. G. Martin, Chief, Operations Support Section, Division of Emergency Preparedness and Operational Support
R. R. Keimig, Chief, Reactor Projects Branch No.2, Division of Project and Resident Programs
L. E. Tripp, Chief, Reactor Projects Section No. 2A, Division of Project and Resident Programs
J. J. Lombardo, Licensing Project Manager, Operating Reactors Branch No. 5, NRR
J. A. Thomas, Resident Inspector, Oyster Creek Nuclear Generating Station

Other NRC Attendees:

E. J. Brunner, Chief, Reactor Projects Branch No. 1, Division of Project and Resident Programs
C. J. Cowgill, Senior Resident Inspector, Peach Bottom Atomic Power Station

c. Background

(1) Licensee Activities

At the beginning of the assessment period, the facility was operating at about 95 percent power having started up from a seven-month-long major refueling outage on July 19, 1980. Plant output was limited by maximum differential pressure across the condensate demineralizers. The licensee was unable to perform the needed demineralizer regenerations because of the inability to process the resulting radioactive liquid waste.

The plant was shut down on November 21, 1980 to repair a leaking feedwater heater and a feedwater system check valve. Power operation was resumed on December 12, 1980, but at a reduced capacity due to condensate demineralizer differential pressure considerations. Power was further reduced later in the month to remove some demineralizers from service to perform regenerations. Full power was achieved on January 26, 1981.

Power was reduced periodically during February, 1981 to repair circulating water intake screens and salt water leaks in the main condensers. Power was limited to about 90 percent in March due to demineralizer capacity. A five day shutdown began on March 12, 1981 to repair steam leaks in the condenser bay and condenser salt water leaks. A seven day shutdown began on March 28, 1981 when primary system leak rate increased due to a leaking recirculation pump seal and a leaking drywell air cooler.

Power operation resumed on April 2, 1981, but power was reduced to about 70 percent when a feedwater heater string was removed from service due to heater leaks.

A scheduled maintenance shutdown began on April 17, 1981 and lasted until May 28, 1981. The maintenance included general plant maintenance, feedwater heater repairs, installation of environmentally qualified limitorque valve operators in the drywell, and modifications to containment isolation valve control circuits.

During restart on May 29, the reactor tripped on low water level caused by a bypass valve transient. Restart was accomplished the following day but full power was not achieved until June 11, 1981 because of condenser salt water leaks.

Power was reduced on June 18 due to inability to maintain condenser vacuum. It was further reduced on June 23 when a feedwater heater string was removed from service for leak repairs. The plant tripped on June 26, 1981 due to low condenser vacuum and was restarted on June 30 after repairs to the steam jet air ejector system.

Throughout the month of July the plant operated at reduced power due to degraded condenser vacuum. A shutdown began on August 11, 1981 to correct an increasing primary leak rate and to investigate the degraded vacuum condition. Startup was delayed by sudden tube failures in two of three shutdown cooling heat exchangers on August 26 and 27, 1981. The plant remained in cold shutdown using alternate means of decay heat removal until restart on October 15, 1981.

The plant tripped on October 19, 1981 when a main steam isolation valve was inadvertently closed during surveillance testing. Restart was accomplished on October 19, but a shutdown was initiated on October 21, 1981 when a conduit, attached to the outside wall of the reactor building, collapsed breaking several instrument control cables and causing closure of the off-gas isolation valve. Restart was conducted on October 22 but another shutdown began on October 30 to repair a leaking manway cover on a main steam system reheater.

Restart was commenced on November 2, but full power was not achieved until November 11, 1981 due to malfunctions of the Traversing Incore Probe system.

On December 9, 1981, the facility was shut down to repair limitorque valve operators damaged by a practice of "backseating" the valves to stop packing leaks. Startup has been delayed by bearing failures in the reactor water cleanup system auxiliary pump, control rod drive hydraulic pump failures, diesel generator air cooler tube leaks, and main steam isolation valve leaks. The plant remains in cold shutdown pending satisfactory completion of primary containment integrated leak tests.

(2) Inspection Activities

One NRC resident inspector was onsite for the entire appraisal period.

Total NRC Inspection Hours: 2062 (Resident and region based). Distribution of inspection hours is shown on Table 3.

A tabulation of inspection activities is shown in Table 4, and a tabulation of violations is shown in Table 5.

One inspection was conducted by the State of Nevada resident inspector at the Beatty waste burial site.

II. SUMMARY OF RESULTS

OYSTER CREEK NUCLEAR GENERATING STATION

FUNCTIONAL AREAS	CATEGORY 1	CATEGORY 2	CATEGORY 3
1. Plant Operations		X	
2. Radiological Controls o Radiation Protection o Radioactive Waste Management o Transportation o Effluent Control and Monitoring		X	
3. Maintenance			X
4. Surveillance (Including Inservice and Preoperational Testing)			X
5. Fire Protection and Housekeeping		X	
6. Emergency Preparedness		X	
7. Security & Safeguards		X	
8. Refueling		X	
9. Licensing Activities		X	

III. CRITERIA

The following evaluation criteria were applied to each functional area:

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.

To provide consistent evaluation of licensee performance, attributes associated with each criterion and describing the characteristics applicable to Category 1, 2, and 3 performance were applied as discussed in NRC Manual Chapter 0516, Part II and Table 1.

The SALP Board conclusions were categorized as follows:

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.

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.

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 appeared strained or not effectively used such that minimally satisfactory performance with respect to operational safety and construction is being achieved.

IV. PERFORMANCE ANALYSIS

1. Plant Operations

During the previous assessment period, (August 1, 1979 - July 31, 1980), several violations were identified involving procedural inadequacies, inadequate mechanisms for issuance of management instructions, and failure to follow procedures. Of particular importance was an incident involving failure to remove control rod interlock bypass jumpers prior to completion of control cell fuel reload. Programmatic weaknesses were identified in the area of adherence to management controls procedures at the lower management and supervisory levels, and in the area of meeting commitments to the NRC. An improving trend was noted as licensee management responded in a positive manner to address the identified weaknesses.

This area was under continuing review by the resident inspector for the current (November 1, 1980 - October 31, 1981) assessment period. Twelve operations related violations were identified. Failure to follow procedures resulted in four Severity Level V violations. Inadequacies in the area of administrative controls resulted in one Severity Level V violation when PORC meeting reports were not properly distributed, and two Severity Level VI violations involving failure to properly review or revise operating and surveillance procedures. Two Severity Level IV violations were identified involving failure to recognize a containment integrity violation when an isolation valve failed during testing, and recurrent violations of technical specifications when containment spray compartment water tight doors were left open. Failure to report an unplanned radioactive release and inadequate corrective action on recurrent spills of radioactive liquid resulted in two Severity Level IV violations. One Severity Level II violation involving vacuum breaker blockage was indicative of inadequate controls over activities affecting plant operations, and sometimes inadequate tours of the plant by operations personnel. Thirty-two licensee event reports were related to the operations area. Reports were generally timely and accurately identified the causes and corrective actions needed.

Improvements have been noted in management involvement in this area. The licensee has implemented an Operations Support Program. The program involves the assignment of an Assistant to the Plant Operations Director, Shift Assistants, and members of the Nuclear Assurance Division who are tasked with reviewing plant operations and making recommendations for improvement in the areas of procedural adequacy, procedural adherence, and control of activities that have an impact on operations. Also, corporate management has issued policy statements stressing verbatim compliance with operating procedures and has begun vigorously enforcing the policy.

This program has resulted in many improved procedures, improved procedural adherence, improved operator awareness and understanding of plant activities, improved followup of operations identified maintenance concerns, and improved operator morale. The program has relieved some management and supervisory personnel of administrative burdens, allowing more timely and thorough reviews of activities.

The development of a "programs and controls" group has improved the scheduling and prioritization of work activities and the coordination between maintenance and operations.

Some problems still exist with operator knowledge of regulatory requirements. These problems are evidenced by the following:

(1) Failure to recognize malfunction of a TIP in-shield limit switch as a degradation of containment integrity.

(2) Failure to recognize failure of a reactor building ventilation isolation valve as a degradation of containment integrity.

(3) Interpretation of exceeding a peaking factor limit during a power transient as a "Safety Limit Violation."

Licensee corrective and preventive actions have been generally acceptable and indicative of a responsiveness to NRC concerns.

<u>Conclusion</u> - Category 2

<u>Board Recommendations</u> - None

2. Radiological Controls

The previous assessment period identified several areas of major concern. Programmatic problems included inadequate staffing, use of personnel not meeting ANSI N18.1-1971 standards, procedures inconsistent with Technical Specifications, and poor control in the area of transportation of radioactive waste. Nineteen violations were identified and one civil penalty was assessed for inadequate radiation work permit procedures. An improving trend was noted in the latter part of the assessment period when action was taken to upgrade the radiation protection training program, increase the size and quality of the radiation protection staff, and implement organizational changes to put direct management attention in the as of radwaste operations and shipping.

During the current assessment period, four inspections were performed by region based inspectors in the area of radiological controls. One included review of the radwaste management program and two included review of effluent monitoring and control. In addition, one regional office evaluation of a State of Nevada burial site inspection, and one investigation of NAC-1E shipping cask event were conducted. Selected activities in this area were under continuous review by the resident inspector. Six violations, two Severity Level III's associated with radioactive waste transportation, two Severity Level IV's associated with control of high radiation area access, and two Severity Level V's associated with dosimetry issue procedures and control of procedure changes were identified. These items were not repetitive or indicative of programmatic breakdowns. Corrective actions were timely.

Two licensee event reports identified unmonitored uncontrolled liquid releases. Four operations related event reports identified failures to monitor gaseous effluents due to sample system breakdowns. The events were properly classified and reported.

Management involvement in this area is evidenced by the major reorganization of the radwaste management program and generally well defined procedures. However, lack of formal approval of Radiation Control Technician training program remains a long-standing issue. The General Employee Training Program contributes to fair adherence to procedures and minor numbers of personnel errors. The plant staffing appears to be adequate and the radiological engineering reviews show evidence of adequate planning and technically sound approaches to problems.

Conclusion - Category 3

Board Recommendations - None

3. Maintenance

Three inspections during the previous assessment period identified no violations. Three of four maintenance related event reports involved personnel error. The assessment concluded that the licensee had a viable maintenance program with no major programmatic weaknesses.

During the current assessment period, one region based inspection and routine inspection by the resident inspector identified no violations. In an effort to improve the maintenance program, the licensee has assigned a full time preventive maintenance manager and a full time corrective maintenance manager reporting to the plant maintenance manager. This has placed increased management attention on the control of maintenance activities; however, there is a lack of corporate and plant management involvement in the review and prioritization of outstanding maintenance items and an apparent understaffing in maintenance departments. There is a large backlog of outstanding work orders and frequent instances where job orders are closed out when only temporary repairs are completed, or where job orders considered to be of minor importance are cancelled.

In addition to a backlog of maintenance orders, there is a large number of long-standing lifted leads and jumpers. These have not been closed because of incomplete maintenance modifications which did not include permanent removal of abandoned components, or the need for further engineering review.

The preventive maintenance program is being expanded and crews dedicated specifically to preventive maintenance are being formed. This program presently involves primarily instrumentation and lubrication. Maintenance records are reviewed by a preventive maintenance engineer who is developing machinery history records, but this program has not yet been developed to the point that maintenance trend analysis can be performed.

In addition to marginal maintenance history records, the availability of current equipment data is a weakness. Controlled files of equipment data with component model and serial numbers, parts lists, and engineering drawings are not always up to date. For example, the controlled valve list does not reflect the fact that the reactor building to suppression chamber air operated vacuum breakers were eplaced with valves made by a different manufacturer in 1979.

The licensee's response to NRC initiatives is sometimes delayed. For example, corrective actions on a 1977 IE Circular relating to fuse coordination in Standby Liquid Control system Squib firing circuits, a 1979 IE Circular relating to defective diesel fire pump starting contactors, and a 1979 IE Circular on Limitorque valve operator locking devices were not completed until the NRC expressed concern for lack of responsiveness.

An event during the assessment period involving blockage of torus vacuum breaker valves by contractor erected scaffolding resulted in a Severity Level II violation and assessment of a civil penalty. Another event involved an unmonitored airborne release of radioactive material from the radwaste building ventilation system. These events are indicative of inadequate control of contractor work. After the assessment period, an event involving improper assembly and testing of a torus vacuum breaker valve was discovered. The action resulted in one torus vacuum breaker being inoperable for about 18 months during reactor operation. This event, which is still under review by the NRC, indicates that a strengthening of management control and procedural control over maintenance activities is necessary.

The licensee has implemented a program of increased management involvement in maintenance activities. In addition, recent staffing changes which have placed individuals with extensive maintenance background in upper-level management positions have resulted in an improving trend in this area.

Conclusion - Category 3

Board Recommendations - Increased inspection effort by the resident inspector

4. Surveillance

During the previous assessment period, six routine unannounced inspections by region based inspectors, one Performance Appraisal Branch Inspection and routine inspection by the resident inspector identified three violations. The licensee had failed to perform surveillances on three occasions.

During the current assessment period, two region based inspections, one regional based team inspection, and routine resident reviews identified eight violations. The violations involved failure to conduct Technical Specification and ASME Section XI testing, inaccurate calibration, calibration and testing without procedure, and inadequate calibration data and procedural changes.

Corrective action was agreed to in an Immediate Action Letter dated April 8, 1981. The licensee agreed to upgrade his inservice test program to meet the requirements of ASME code Section XI by January 1, 1982. After the assessment period, region based inspectors found that the licensee had not completed all corrective action, in that a program for valve testing was not fully implemented. The licensee has since submitted a revised completion schedule to NRC:RI. The licensee stated that operational commitments and manpower shortages were the reasons for not meeting the commitments. The high number of violations and the failure to meet commitment dates without notification, indicate weakness in licensee management control in this area.

The large number of event reports resulting from instrument drift and the long standing nature of this issue indicates a need for high level management involvement in this area to achieve technically acceptable resolution. Violations resulting from missed surveillances, in particular a Severity Level IV violation involving failure to survey Emergency Service Water pumps following unacceptable surveillance on redundant pumps, indicate a need for more management attention in review of surveillance programs and assuring unambiguous acceptance criteria.

This need is further amplified by a violation that occurred after the assessment period. Three successive failures of an isolation condenser valve during operability testing followed by two successful operations of the valve, with no followup investigation to determine the cause of the failures, was interpreted by a member of the management staff as acceptable component performance.

Conclusion - Category 3

Board Recommendations - None

5. Fire Protection and Housekeeping

Three inspections by region based inspectors and one Performance Appraisal Branch inspection during the previous assessment period identified no major programmatic weaknesses. Two violations were identified involving storage of combustible material in safety related areas.

During this assessment period, general fire protection activities and housekeeping were under continuous review by the resident inspector. No programmatic inspections were performed. No violations in this area have been identified. Two Licensee Event Reports were submitted; one, the result of mechanical failure of a fire hydrant, the other involving personnel error when a cable penetration barrier was found in a degraded condition.

Management involvement in this area is evident by the assignment of a full time fire protection engineer, recent procedural revisions to provide better control of combustible material, and improved surveillance of fire barriers.

There were considerable problems causing delays in the installation and testing of a storage tank and pumping system to provide an alternate source of water to the fire protection system.

Several recent events involving wetting and ultimate impairment of safety related electrical equipment have demonstrated inadequacies in the original fire protection safety evaluation. High level management attention to this problem since the end of the assessment period has resulted in an extensive survey of plant systems and a program to waterproof and protect electrical components.

Housekeeping has improved during this assessment period as a result of more management attention. Radiological housekeeping conditions are generally acceptable with no significant NRC inspection findings in this area. Poor general plant cleanliness and appearance, however, continues to reflect poor plant staff attitudes and lack of professionalism/pride. An improving trend has been noted as a result of increased management attention.

Conclusion - Category 2*

Board Recommendations - None

*This rating is assigned without regard to the licensee's position on 10 CFR 50, Appendix R provisions.

6. Emergency Preparedness

No programmatic inspections were conducted in this area during the previous assessment period.

During the current assessment period, an emergency preparedness drill was observed by the resident inspector. The drill indicated weaknesses in the licensee's ability to implement the provisions of a revised emergency plan issued about one week prior to the drill. The licensee recognized the deficiencies which were also identified by several internal audits. An intensive upgrade program, which included significant increases in emergency planning staff, further emergency plan and procedure reviews, and intensive training, was begun.

An NRC team appraisal of emergency preparedness was conducted in January 1982 after the end of the assessment period. The appraisal identified significant weaknesses requiring corrective actions. These weaknesses included: required upgrading of emergency response facilities; improved capability for post accident sampling of stack effluent, reactor coolant, and containment atmosphere; emergency procedure improvement; and better definitions of the training program for emergency response personnel. The licensee's proposed corrective actions were discussed in a Confirmatory Action Letter dated February 18, 1982.

An NRC team observation of a major emergency preparedness exercise was conducted in March 1982. This observation determined that the licensee had demonstrated the capability to implement the provisions of the emergency plan to adequately protect the public health and safety during an accident, however, areas for improvement were noted and discussed with the licensee.

The licensee failed to meet the February 1, 1982 deadline for installation of a Public Notification System and was issued a Severity Level III Notice of Violation. Forty five warning sirens were installed and tested by February 26, 1982. The final siren was installed and tested on March 5, 1982.

Conclusion - Category 2*

Board Recommendations - None

*This categorization has been assigned on the bases of additional information developed after the assessment period and without regard to resolution of the outstanding issue of the Confirmatory Action Letter of February 18, 1982.

7. Security and Safeguards

During the previous assessment period, two routine inspections by region based inspectors, routine review of selected areas by the resident inspector, and one inspection by the Performance Appraisal Branch identified no violations or evidence of programmatic weaknesses. During one inspection, allegations by a former security watchman, which had been published in a local newspaper, were reviewed but could not be substantiated.

During the assessment period, two routine inspections by region based inspectors identified 7 violations. Six Severity Level IV violations were identified involving failure to secure a vital area barrier, use of improper identification badges, failure to conduct key audits, failure to perform explosives detector performance tests, inadequate lighting in two areas, and failure to retain certain records. Licensee's corrective action on these items, which were identified in one inspection, were discussed in a management meeting during this assessment period. One Severity Level V violation involving failure to properly control a vehicle within the protected area was identified in a subsequent inspection. The large number of violations are not indicative of major programmatic breakdowns. An inspection conducted since the end of the assessment period (December 7-11, 1981) identified no similar problems. Management attention is demonstrated by the prompt action to correct and prevent recurrence of the identified problems. Site management is generally responsive to security program requirements. Required reviews, audits and records are generally complete and show involvement by Corporate management. The security organization is well staffed with well defined responsibilities and adequately trained personnel. Procedural adherence is good with infrequent personnel errors.

Conclusion - Category 2

Board Recommendations - None

8. Refueling and Major Outage Activities

During the previous assessment period, one region based inspection and frequent resident inspector reviews of refueling and outage activities identified two violations involving procedural inadequacies and procedural adherence. One of the violations involved a major breakdown of administration controls causing failure to remove control rod interlock bypass jumpers prior to control cell fuel reload. This violation received high level management attention by the corporate General Office Review Board and the Independent Safety Review Group.

During the current assessment period, one region based inspection of post refueling testing and reload analysis was conducted. No violations were identified.

One scheduled and frequent unscheduled maintenance outages occurred during the assessment period. Considerable improvements in scheduling and coordination of outage activities were noted. This is due primarily to the assignment of a full-time Programs and Controls Manager who oversees outage planning. Scheduling activities generally addressed key outage and outage recovery items.

Some problems in the area of control of contractor work were noted as evidenced by one violation involving blocking of torus vacuum breakers by contractor erected scaffolding and an event involving an airborne release of radioactive material from the radwaste building ventilation system.

One region based inspection conducted after the assessment period, identified some weaknesses in the area of control of design changes and modifications. These findings, which are under review by NRC management, indicated that the management of the design changes and modification program is very fragmented with poor central control and review. Many procedures for the program are in draft form and many are still being prepared.

Training on modifications completed during outages is sometimes delayed until just prior to startup, and drawing revisions are sometimes delayed. This, together with insufficient management involvement in design change program, results in an occasional lack of coordination between engineering, construction, and operations staff during turnover of systems to operations control and in occasionally late implementation of revised procedures.

The licensee has a well staffed corporate technical engineering group. This group is still gaining site specific familiarity resulting in considerable reliance on contractors for engineering support.

<u>Conclusion</u> - Category 2

<u>Board Recommendations</u> - In light of the planned extended outage involving numerous and diverse modifications, increased inspection activity should be devoted to outage activities particularly during the early portion of the outage.

9. Licensing Activities

No specific assessment of licensing activities was performed during the prior assessment period; pertinent issues were included in other functional areas.

Licensing activities during the current assessment period included miscellaneous Technical Specification changes, a review of TMI Task Action Plan items, a major license amendment changing the license to GPU Nuclear Corporation, and replacement core spray sparger design.

The licensee's performance and management capabilities were generally adequate; however, the timeliness of responses has been poor with a two to three month time delay being the norm. Details of submittals are usually coordinated with the staff beforehand to establish requirements and clarity, and are generally good quality. However, some submittals relative to the Systematic Evaluation Program (SEP) and the TMI Task Action Plan (NUREG-0737) were not always complete and resulted in frequent requests by NRC for additional information. The licensee and his contractors have demonstrated adequate working knowledge of regulatory requirements and excellent levels of technical competence. The licensee's staffing is generally adequate, but in view of planned modifications and possible SEP upgrade requirements, may require increases.

Conclusion - Category 2

Board Recommendations - None

V. SUPPORTING DATA AND SUMMARIES

1. Licensee Event Reports

Tabular Listing

Type of Events:

A.	Personnel Error	8
B.	Design/Man./Constr./Install.	6
C.	External Cause	0
D.	Defective Procedure	6
E.	Component Failure	34
X.	Other	16
	Total	70

Licensee Event Reports Reviewed:

Report No. 80-49/01P through 81-55/03L

Causal Analysis

Seven sets of common mode events were identified:

a. LERs 80-50/3L, 80-52/3L, 80-55/3L, 80-56/3L, 80-57/3L, 80-60/3L, 80-63/3L, 81-01/3L, 81-06/3L, 81-10/3L, 81-11/3L, 81-12/3L, 81-13/3L, 81-15/3L, 81-21/3L, 81-26/3L, 81-40/3L, 81-49/3L, 81-51/3L, and 81-54/3L identified events in which surveillance testing found safety related instrument setpoints out of specification due to setpoint drift.

b. LERs 80-51/3L, 80-59/3L, 81-19/3L, 81-24/3L, and 81-32/3L involved missed surveillance tests caused by inadequate procedures (3 LERs) or personnel error (2 LERs).

c. LERs 80-53/3L, 80-54/3L, 80-62/3L, and 81-29/3L are events in which Control Rod Drive Hydraulic Pump failures caused (3 LERs) or contributed (1 LER) to the event.

d. LERs 80-58/3L, 80-61/3L, 81-09/3L, and 81-46/3L identified events in which hydraulic snubbers were found to be inoperable during surveillance testing.

e. LERs 81-02/3L, 81-41/1P, 81-42/1P, and 81-43/1P involved failure to continuously monitor the plant stack effluent activity due to failures of the sample system pumps.

f. LERs 81-07/3L and 81-37/3L reported incidents where the containment spray compartment water tight doors were left open.

g. LERs 81-22/1P, 81-25/1P, 81-27/3L, 81-30/1P, 81-33/1P, 81-48/3L, and 81-52/3L reported events where containment integrity was violated or degraded due to personnel error (3 LERs) or valve failure (4 LERs).

2. Investigation Activities

An investigation was conducted between October 6, 1980, and January 14, 1981 of the circumstances surrounding the transportation and use of shipping cask Model NFS-4, Serial NAC-1E, from the time it was shipped from Haddam, Connecticut, May 1, 1980, until it arrived at Camp Pendleton, California August 20, 1980. The cask arrived at Oyster Creek July 23, 1980 and was shipped from the site on August 15, 1980. No items of noncompliance were identified against this license.

3. Escalated Enforcement Actions

a. Civil Penalties

A civil penalty of $80,000 was assessed on August 21, 1981 for violation of Technical Specification Limiting Condition for Operation when one reactor building to suppression chamber vacuum breaker in each line was prevented from opening by contractor erected scaffolding.

b. Orders

Order Modifying License dated January [illegible], 1981 requiring an automatic system to initiate control rod insertion on low pressure in the scram air header pursuant to IEB 80-17. (Issued to all BWR Licensees).

Order Modifying License dated January 13, 1981 requiring assessment of suppression pool hydrodynamic loads and modifications to assure conformance with the criteria in NUREG-0661 Appendix A. (Issued to all licensees with Mark I Containments).

Order Modifying License dated March 24, 1981 extending the deadline date of the January 13, 1981 order.

Order Modifying License dated April 20, 1981 Implementing Technical Specifications on leak testing of certain motor operated valves. (Issued to all licensees with Event V isolation valve configurations within the boundary of high pressure to low pressure piping).

Order Modifying License dated July 7, 1981 confirming licensee commitments for TMI related requirements contained in NUREG-0737. (Issued to all licensees).

c. <u>Immediate Action Letters</u>

IAL 80-20 dated April 8, 1981 confirming actions to be taken to implement a pump and valve test program conforming to Section XI of the ASME Boiler and Pressure Vessel Code.

4. <u>Management Conferences Held During the Assessment Period</u>

Management Meeting at the Region I office on January 14, 1981 to discuss the Physical Security Program and the violations identified during Physical Security Inspection 50-219/80-36. (Meeting No. 50-219/81-02).

TABLE I

TABULAR LISTING OF LERs BY FUNCTIONAL AREA

OYSTER CREEK NUCLEAR GENERATING STATION

Area	Number/Cause Code	Total
1. Plant Operations	5/A, 4/B, 3/D, 17/E, 3/X	32
2. Radiological Controls	1/D, 1/E	2
3. Maintenance	3/E	3
4. Surveillance	2/A, 2/B, 1/D, 13/E, 13/X	31
5. Fire Protection	1/A, 1/E	2
6. Emergency Preparedness	None	
7. Security and Safeguards	None	
8. Refueling	None	
9. Licensing Activities	None	
	TOTAL	70

Cause Codes:

A - Personnel Error
B - Design, Manufacturing, Construction, or Installation Error
C - External Cause
D - Defective Procedures
E - Component Failure
X - Other

TABLE 2

OYSTER CREEK NUCLEAR GENERATING STATION

LER SYNOPSIS

NOVEMBER 1, 1980 - OCTOBER 31, 1981

LER Number	Type	Summary Description
80-49/01P	24 Hour	Degradation of the reactor coolant pressure boundary when the Isolation Condenser vent isolation valves failed to close.
80-50/03L	30 Day	Containment Spray System high drywell pressure switches IP-15A, IP-15B, IP-15C and IP-15D tripped at a value greater than that specified.
80-51/03L	30 Day	The required daily surveillance for APLHGR, LHGR, and MCPR was not performed.
80-52/03L	30 Day	Reactor triple low water level indicator switches RE-18A and RE-18D both tripped at values higher than specified.
80-53/03L	30 Day	Operation in a degraded mode when CRD pumps were removed from service to repair leaks.
80-54/03L	30 Day	Core Spray System I removed from service to inspect motors wetted by CRD pump leaks.
80-55/03L	30 Day	Core Spray High Drywell Pressure Switches tripped at values higher than specified.
80-56/03L	30 Day	Main Steam Line High Flow Pressure Switches tripped at values greater than specified.
80-57/03L	30 Day	Containment Spray System High Drywell Pressure Switches tripped at values greater than specified.
80-58/03L	30 Day	Two Hydraulic Snubbers failed to lock up during functional testing.
80-59/03L	30 Day	Diesel Generator Battery and Main Station Battery Monthly Surveillance not performed as required.
80-60/03L	30 Day	Isolation Condenser Pipe Break Sensors tripped at values greater than specified.

LER Number	Type	Summary Description
80-61/03L	30 Day	Three Hydraulic Snubbers failed to lock up during functional testing.
80-62/03L	30 Day	Operation in a degraded mode when CRDH Pump 'A' failed in service.
80-63/03L	30 Day	Reactor Triple Low Water Level Switch tripped at a value greater than specified.
81-01/03L	30 Day	Containment Spray High Drywell Pressure Switch tripped at higher value than required.
81-02/03L	30 Day	Stack gas activity not continuously monitored due to sample pump failure.
81-03/03L	30 Day	Fire Hydrant number 2 declared inoperable due to a frozen barrel.
81-04/01P	24 Hour	Load on Emergency Diesels could exceed rated load on design basis accident.
81-05/03L	30 Day	Emergency service water pump 52B failed to demonstrate operability during testing.
81-06/03L	30 Day	Reactor Triple Low Level Switch tripped at value less conservative than required.
81-07/03L	30 Day	Violation of Tech Spec 3.4.E when the NE Containment Spray Water Tight Door was found open.
81-08/03L	30 Day	Water seeped through the west wall of NRW Building following flooding of chem waste tank vaults.
81-09/03L	30 Day	Hydraulic Snubber 23/3 found leaking oil and failed subsequent test.
81-10/03L	30 Day	MSL High Radiation Monitor RN06B tripped at a value higher than specified.
81-11/03L	30 Day	Iso-Condenser Isolation Pipe Break Sensor IB11B2 tripped at value greater than specified.

Table 2 (Con'd)

LER Number	Type	Summary Description
81-12/03L	30 Day	EMRV high pressure sensors 1A83C and 1A83E set points exceeded tech spec limit.
81-13/03L	30 Day	Core Spray High Drywell Pressure Sensor RV46B tripped at a value higher than specified.
81-14/01P	24 Hour	Primary containment atmosphere not reduced to less than 5% oxygen within 24 hours of startup.
81-15/03L	30 Day	Main Steam Line High Flow Sensors RE22F and RE22G tripped at values higher than specified.
81-16/03L	30 Day	Failure of packing in valve V-2-88 resulted in an unmonitored release of radioactive water.
81-17/03L	30 Day	Containment Spray System I inoperable due to loss of suction on ESW pumps when water level dropped at intake structure.
81-18/01P	24 Hour	Reactor building to suppression chamber vacuum breakers prevented from opening.
81-19/03L	30 Day	During normal shutdown IRM Calibration was not performed as required.
81-20/03L	30 Day	Water level in B Iso-Condenser less than specified due to instrument error.
81-21/03L	30 Day	Reactor high pressure sensors RE-03B, C, D trip settings higher than specified.
81-22/01P	24 Hour	Violation of containment when both personnel access airlock doors were open on the NE airlock.
81-23/03L	30 Day	Tech Spec LCO exceeded when drywell Torus DP was not within specified limits.
81-24/03L	30 Day	Emergency service water pumps found to be inoperable and required operability check of redundant pumps was not performed as specified.

LER Number	Type	Summary Description
81-25/01P	24 Hour	Violation of Secondary Containment Integrity when both railroad airlock doors were opened.
81-26/03L	30 Day	Iso-Condenser initiation pressure switch RE15A tripped at a value higher than specified.
81-27/03L	30 Day	Operation in a degraded mode when Number 2 TIP Ball Valve failed to close automatically.
81-28/03L	30 Day	Unmonitored release through new radwaste building ventilation ductwork.
81-29/03L	30 Day	Operation in a degraded mode when CRDH Pump 'B' motor bearing failed in service.
81-30/01P	24 Hour	Violation of Secondary Containment when exhaust valve V28-22 failed to close.
81-31/03L	30 Day	Operation in a degraded mode when the 'B' EMRV failed to open during testing.
81-32/03L	30 Day	Monthly channel checks of the accident monitoring instrumentation were not performed.
81-33/01P	24 Hour	Secondary Containment Integrity was violated when both NW airlock doors were found open.
81-34/03L	30 Day	Violation of Tech Spec when the peaking factor was 110% of the allowable limit.
81-35/03L	30 Day	Violation of Tech Spec when a degraded fire barrier was discovered and no fire watch was established.
81-36/03L	30 Day	Reactor Water Level Instrumentation for one channel in both RPS Systems were inoperable.
81-37/03L	30 Day	Violation of Tech Specs when SE containment spray compartment door was found open.

LER Number	Type	Summary Description
81-38/03L	30 Day	Tube rupture in A and C Shutdown Cooling Heat Exchanger while in cold shutdown.
81-39/03L	30 Day	Unmonitored release of radioactive water due to RBCCW heat exchanger tube failure.
81-40/03L	30 Day	EMRV High Pressure Sensors IA83B and C setpoints exceeded specified value.
81-41/01P	24 Hour	Stack Gas Activity was not continuously monitored due to trip of the 'A' Sample Pump.
81-42/01P	24 Hour	Stack Gas Activity was not continuously monitored due to trip of the 'B' Sample Pump.
81-43/01P	24 Hour	Stack Gas Activity was not continuously monitored due to air in-leakage at Sample Pump inlet.
81-44/03L	30 Day	Standby Gas Treatment Fan 1-8 was removed from service for corrective maintenance.
81-45/03L	30 Day	Iso-Condenser valve V-14-32 failed during performance of routine surveillance test.
81-46/03L	30 Day	Three hydraulic snubbers in the shutdown cooling system failed during functional testing.
81-47/03L	30 Day	Diesel Generator number 1 failed to achieve peak load during surveillance testing.
81-48/03L	30 Day	Degradation of primary containment integrity when RWCU Isolation Valve V-16-2 failed to close.
81-49/03L	30 Day	Containment Spray High Drywell Pressure Switches IP-15A and C tripped at values greater than specified.
81-50/03L	30 Day	Operation in a degraded mode when core spray pump pressure switch RV-29C failed to reset at the specified value.

LER Number	Type	Summary Description
81-51/03L	30 Day	Electromatic relief valve high pressure sensor IA83E setpoint exceeded the specified value.
81-52/03L	30 Day	Operating in a degraded mode when the in-shield limit switch for No. 2 TIP machine failed preventing ball valve from automatically closing.
81-53/03L	30 Day	Ability of offgas system to automatically isolate was lost for 13 hours due to broken power cable.
81-54/03L	30 Day	Main Steam Line Low Pressure Sensor RE 23D tripped at pressure lower than limit specified in the Tech Specification.
81-55/03L	30 Day	Acoustic Monitoring System (AMS) for safety and relief valve position indication found to have two channels that provided no or low response.

TABLE 3

INSPECTION HOURS SUMMARY (11/1/80 - 10/31/81)

OYSTER CREEK NUCLEAR GENERATING STATION

		HOURS	% OF TIME
1.	Plant Operations	1053	51
2.	Radiological Controls	223	11
3.	Maintenance	128	6
4.	Surveillance	201	10
5.	Fire Protection	85	4
6.	Emergency Preparedness	20	1
7.	Security and Safeguards	202	10
8.	Refueling	46	2
9.	Licensing Activitives	No Data Available	
10.	Other	104*	5
	**Total	2062	100%

* 104 hours of region based investigation in response to a radioactively contaminated spent fuel shipping cask.

** Allocations of inspection hours vs. Functional Areas are approximations based on inspection report data.

TABLE 4

INSPECTION REPORT ACTIVITIES

OYSTER CREEK NUCLEAR GENERATING STATION

REPORT	INSPECTOR	AREAS INSPECTED
80-33	Resident	Routine
80-34	Specialist	Post-Refueling Testing
80-35	Resident	Routine
80-36	Specialist	Physical Security
80-37	Specialist	Transportation
80-38	Investigator	Shipping Cask Contamination
81-01	Resident	Routine
81-02	---	Management Meeting
81-03	Resident	Routine
81-04	Specialist	Radiation Protection
81-05	Specialist	Surveillance, Calibration
81-06	Resident	Routine
81-07	Specialist	In-Service Inspection
81-08	Specialist	In-Service Testing, Quality Assurance, Design Changes, Maintenance
81-09	Specialist	Radiation Protection
81-10	Resident	Routine
81-11	Resident	Routine
81-12	Resident	Routine
81-13	Specialist	Physical Security

Table 4 (Con'td)

REPORT	INSPECTOR	AREAS INSPECTED
81-14	Resident	Routine
81-15	Specialist	Radiation Protection
81-16	Resident	Routine
81-17	Resident	Shutdown Cooling Heat Exchanger Failure
81-18	Resident	Routine
81-19	Resident	Routine
81-20	Specialist	Independent Measurements

TABLE 5

VIOLATIONS (11/1/80 - 10/31/81)

OYSTER CREEK NUCLEAR GENERATING STATION

A. Number and Severity Level of Violations

1. Severity Level

Severity Level I	0
Severity Level II	1
Severity Level III	2
Severity Level IV	16
Severity Level V	13
Severity Level VI	3
Total	35

B. Violations Vs. Functional Area

FUNCTIONAL AREAS	Severity Levels I	II	III	IV	V	VI
1. Plant Operations		1		4	5	2
2. Radiological Controls			2	2	2	
3. Maintenance					2	
4. Surveillance				4	3	1
5. Fire Protection						
6. Emergency Preparedness						
7. Security & Safeguards				6	1	
8. Refueling						
9. Licensing Activities						
Totals		1	2	16	13	3

Total Violation = 35

TABLE 5

ENFORCEMENT DATA

OYSTER CREEK NUCLEAR GENERATING STATION

November 1, 1980 - October 31, 1981

Inspection Number	Inspection Date	Subject	Req.	Sev.	Area
80-36	12/13-19/80	Failure to secure vital area barriers	PSP	IV	7
80-36	12/13-19/80	Use of improper I.D. badge	PSP	IV	7
80-36	12/13-19/80	Failure to conduct protected area key audit and failure to change safe combinations	PSP	IV	7
80-36	12/13-19/80	Explosives detector performance tests were not conducted	PSP	IV	7
80-36	12/13-19/80	Inadequate lighting at locations in the protected area	PSP	IV	7
80-36	12/13-19/80	Failure to retain certain records as required	PSP	IV	7
80-37	12/30/80	LSA radioactive material was delivered to a carrier for transport in a package that was not a strong, tight package	49CFR 173	III	2
80-37	12/30/80	LSA radioactive material was delivered to a carrier for transport without properly describing the physical form of the material in the shipping papers	49CFR 173	III	2
81-01	1/5-31/81	Annunciator and Alarm procedures was not followed	TS	V	1
81-03	2/2-28/81	Failure to follow dosimetry issue procedures	TS	V	2

Inspection Number	Inspection Date	Subject	Req.	Sev.	Area
81-04	3/2-681	Administrative Control requirements for procedure changes were not followed	TS	V	2
81-05	3/9-13/81	Test gauges used for safety related calibrations are not of acceptable accuracy or readability for the calibrations being performed	AppB	V	4
81-05	3/9-13/81	Calibrations are performed on safety related instruments without using approved procedures, and diesel generator KW and KVAR meters and fire pump RPM meters are not being calibrated	TS	V	4
81-05	3/9-13/81	Failure to test valves as required by the inservice test program	AppB	V	4
81-05	3/9-13/81	PORC meeting minutes are not being distributed to the ISRG and GORB as required by T.S.6.5.4.1	TS	V	1
81-05	3/9-13/81	Annual reviews of operating procedures were not performed	TS	VI	1
81-05	3/9-13/81	Calibration data was omitted from instrument history cards and had not received supervisory review	TS	VI	4
81-05	3/9-13/81	The core spray pump test procedure was not revised to reflect that the fill pumps no longer operate automatically	TS	VI	1
81-06	3/1-31/81	Safety related material was purchased on requisition 61619 without OQA review	AppB	V	3
81-08	3/30-4/3/81	Pump operability tests were not performed in accordance with Section XI of the ASME B&PV Code	AppB	IV	4
81-08	3/30-4/3/81	Handling, Storage, and preservation of materials and equipment to prevent damage or deterioration, and the cleanliness of the Level B storage area were not in conformance with ANSI N45.2.2	AppB	V	3

Table 5 (Con't)

Inspection Number	Inspection Date	Subject	Req	Sev.	Area
81-10	4/1-30/81	One reactor building to suppression chamber vacuum breaker in each line was rendered inoperable by the placement of contractor erected scaffold	TS	II	1
81-10	4/1-30/81	Corrective action has been ineffective in correcting conditions adverse to quality which present the potential for the release of radioactive material from the condensate transfer pump building	AppB	IV	1
81-11	5/1-30/81	Several electrical jumpers were found improperly installed or disconnected	TS	V	1
81-12	6/1-30/81	The required daily surveillance was not performed on emergency service water pumps when the redundant pumps were inoperable	TS	IV	4
81-12	6/1-30/81	A high radiation area was not locked or guarded to prevent unauthorized entry	TS	IV	2
81-13	6/8-12/81	A vehicle in the protected area was left unlocked, unattended with the keys in the ignition	PSP	V	7
81-14	7/1-30/81	Secondary containment integrity was not maintained as required when valve V-28-22 was inoperable and not secured in the closed position	TS	IV	1
81-14	7/1-30/81	Instrument channel checks of the accident monitoring instruments were not performed monthly from May 8, 1981 to July 13, 1981	TS	IV	4
81-14	7/1-30/81	The southeast containment spray pump compartment water tight door was left open in violation of technical specification	TS	IV	1

Table 5 (Con't)

Inspection Number	Inspection Date	Subject	Req.	Sev.	Area
81-16	8/4-9/14/81	Personnel entered a high radiation area without proper radiation dose rate monitoring equipment	TS	IV	2
81-16	8/4-9/14/81	Failure to follow procedures during performance of surveillance test	TS	V	1
81-17	8/27-10/19/81	Failure to report an unplanned, uncontrolled radioactive liquid release	10CFR 50.72	IV	1
81-18	9/15-10/5/81	Failure to follow procedures for conduct of shift turnover	TS	V	1
81-18	9/15-10/5/81	Failure to implement test procedures with adequate acceptance criteria for the station batteries	AppB	IV	4

ENCLOSURE 3

Nuclear

GPU Nuclear
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Parsippany, New Jersey 07054
201 263-6500
TELEX 136-482
Writer's Direct Dial Number:

May 6, 1982

Mr. Richard Starostecki, Director
Division of Project and Resident Programs
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Starostecki:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Systematic Assessment of Licensee Performance (SALP)

Your letter of April 7, 1982 provided, for our review and response, a draft Systematic Assessment of Licensee Performance (SALP) report concerning activities conducted at the Oyster Creek Nuclear Generating Station for the period November 1, 1980 through October 31, 1981. Attachment I to this letter provides our responses to the maintenance and surveillance areas which were classified as areas of weakness.

In addition to our specific responses concerning those two areas, we are taking this opportunity to provide comments on the other areas which were evaluated. The additional comments, also contained in Attachment I, are provided to help meet the SALP objective of furthering NRC's understanding in how the licensee management directs, guides, and provides resources for assuring plant safety.

Very truly yours,

Philip R. Clark

Philip R. Clark
Executive Vice President
GPU Nuclear Corporation

cc: Mr. Ronald C. Haynes, Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

ATTACHMENT I

Subject: Responses and Comments to the NRC Systematic Assessment of Licensee Performance (SALP)

Evaluation Period: November 1, 1980 Through October 31, 1981

Summary of NRC Evaluation:

FUNCTIONAL AREAS	OYSTER CREEK NUCLEAR GENERATING STATION CATEGORY 1	CATEGORY 2	CATEGORY 3
1. Plant Operations		X	
2. Radiological Controls		X	
3. Maintenance			X
4. Surveillance (Including Inservice and Preoperational Testing)			X
5. Fire Protection and Housekeeping		X	
6. Emergency Preparedness		X	
7. Security & Safeguards		X	
8. Refueling		X	
9. Licensing Activities		X	

Category Definitions:

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.

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.

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 appeared strained or not effectively used such that minimally satisfactory performance with respect to operational safety and construction is being achieved.

1. Plant Operations - NRC Evaluation

During the previous assessment period, (August 1, 1979 - July 31, 1980), several violations were identified involving procedural inadequacies, inadequate mechanisms for issuance of management instructions, and failure to follow procedures. Of particular importance was an incident involving failure to remove control rod interlock bypass jumpers prior to completion of control cell fuel reload. Programmatic weaknesses were identified in the area of adherence to management controls procedures at the lower management and supervisory levels, and in the area of meeting commitments to the NRC. An improving trend was noted as licensee management responded in a positive manner to address the identified weaknesses.

This area was under continuing review by the resident inspector for the current (November 1, 1980 - October 31, 1981) assessment period. Twelve operations related violations were identified. Failure to follow procedures resulted in four Severity Level V violations. Inadequacies in the area of administrative controls resulted in one Severity Level V violation when PORC meeting reports were not properly distributed, and two Severity Level VI violations involving failure to properly review or revise operating and surveillance procedures. Two Severity Level IV violations were identified involving failure to recognize a containment integrity violation when an isolation valve failed during testing, and recurrent violations of technical specifications when containment spray compartment water tight doors were left open. Failure to report an unplanned radioactive release and inadequate corrective action on recurrent spills of radioactive liquid resulted in two Severity Level IV violations. One Severity Level II violation involving vacuum breaker blockage was indicative of inadequate controls over activities affecting plant operations, and sometimes inadequate tours of the plant by operations personnel. Thirty-two licensee event reports were related to the operations area. Reports were generally timely and accurately identified the causes and corrective actions needed.

Improvements have been noted in management involvement in this area. The licensee has implemented a Nuclear Assurance Department Operations Support Program. The program involves the assignment of an Assistant to the Plant Operations Director and Shift Assistants who are tasked with reviewing plant operations and making recommendations for improvement in the areas of procedural adequacy, procedural adherence, and control of activities that have an impact on operations. Also, corporate management has issued policy statements stressing verbatim compliance with operating procedures and has begun vigorously enforcing the policy.

This program has resulted in many improved procedures, improved procedural adherence, improved operation awareness and understanding of plant activities, improved followup of operations identified maintenance concerns, and improved operator morale. The program has relieved some management and supervisory personnel of administrative burdens, allowing more timely and thorough reviews of activities.

The development of a "programs and controls" group has improved the scheduling and prioritization of work activities and the coordination between maintenance and operations.

Some problems still exist with operator knowledge of regulatory requirements. These problems are evidenced by the following:

(1) Failure to recognize malfunction of a TIP in-shield limit switch as a degradation of containment intgrity.

(2) Failure to recognize failure of a reactor building ventilation isolation valve as a degradation of containment integrity.

(3) Interpretation of exceeding a peaking factor limit during a power transient as a "Safety Limit Violation".

Licensee corrective and preventive actions have been generally acceptable and indicative of a responsiveness to NRC concerns.

Conclusion - Category 2

Board Recommendations - None

GPU Nuclear Corporation Comments:

The third paragraph in the above evaluation references a Nuclear Assurance Department Operations Support Program. This is a misnomer. The comment is made in order to avoid confusion between activities conducted by our Nuclear Assurance division and this program.

The program consisted of temporarily assigning experienced personnel, from other divisions within GPUNC, including the Nuclear Assurance Division, to aid in the site specific activities of the Operations, Maintenance and Plant Engineering departments of the Oyster Creek Division. These specific assignments were made on a temporary basis to fill vacant positions. At the present time, the temporarily assigned personnel have returned to their respective divisions. Continuity of the program will be based on an overall evaluation of the program and permanent personnel have been placed in many positions.

With regard to the statement in the last paragraph of the evaluation that some problems still exist with operator knowledge of regulatory requirements, a comprehensive formal refresher training program has been developed for Operations Shift Supervisors in the area of Technical Specification and regulatory requirements. The results achieved by a program of this nature would not be observable in the short term, but are expected to result in improvements in this area.

2. Radiological Controls - NRC Evaluation

The previous assessment period identified several areas of major concern. Programmatic problems included inadequate staffing, use of personnel not meeting ANSI N18.1-1971 standards, procedures inconsistent with Technical Specifications, and poor control in the area of transportation of radioactive waste. Nineteen violations were identified and one civil penalty was assessed for inadequate radiation work permit procedures. An improving trend was noted in the latter part of the assessment period when action was taken to upgrade the radiation protection training program, increase the size and quality of the radiation protection staff, and implement organizational changes to put direct management attention in the areas of radwaste operations and shipping.

During the current assessment period, four inspections were performed by region based inspectors in the area of radiological controls. One included a review of the radwaste management program and two included review of effluent monitoring and control. In addition, one regional office evaluation of a State of Nevada burial site inspection, and one investigation of NAC-1E shipping cask event were conducted. Selected activities in this area were under continuous review by the resident inspector. Six violations, two Severity Level III's associated with radioactive waste transportation, two Severity Level IV's associated with control of high radiation area access, and two Severity Level V's associated with dosimetry issue procedures and control of procedure changes were identified. These items were not repetitive or indicative of programmatic breakdowns. Corrective actions were timely.

Two licensee event reports identified unmonitored uncontrolled liquid releases. Four operations related event reports identified failures to monitor gaseous effluents due to sample system breakdowns. The events were properly classified and reported.

Management involvement in this area is evidenced by the major reoganization of the radwaste management program and generally well defined procedures. However, lack of formal approval of Radiation Control Technician training program remains a long-standing issue. The General Employee Training Program contributes to fair adherence to procedures and minor numbers of personnel errors. The plant staffing appears to be adequate and the radiological engineering reviews show evidence of adequate planning and technically sound approaches to problems.

Conclusion - Category 2

Board Recommendations - None

GPU Nuclear Corporation Comments:

The radiological Field Operations Training Program, referred to in the fourth paragraph, has now been submitted for NRC review and approval. As you are aware, until NRC approves this program, each member of the radiation protection organization, for which there is a comparable position described in ANSI N18.1-1971, meets or exceeds the minimum qualifications specified therein.

3. Maintenance - NRC Evaluation:

Three inspections during the previous assessment period identified no violations. Three of four maintenance related event reports involved personnel error. The assessment concluded that the licensee had a viable maintenance program with no major programmatic weaknesses.

During the current assessment period, one region based inspection and routine inspection by the resident inspector identified no violations. In an effort to improve the maintenance program, the licensee has assigned a full time preventive maintenance manager and a full time corrective maintenance manager reporting to the plant maintenance manager. This has placed increased management attention on the control of maintenance activities; however, there is a lack of corporate and plant management involvement in the review and prioritization of outstanding maintenance items and an apparent understaffing in maintenance departments. There is a large backlog of outstanding work orders and frequent instances where job orders are closed out when only temporary repairs are completed, or where job orders considered to be of minor importance are cancelled.

In addition to a backlog of maintenance orders, there is a large number of long-standing lifted leads and jumpers. These have not been closed because of incomplete maintenance modifications which did not include permanent removal of abandoned components, or the need for further engineering review.

The preventive maintenance program is being expanded and crews dedicated specifically to preventive maintenance are being formed. This program presently involves primarily instrumentation and lubrication. Maintenance records are reviewed by a preventive maintenance engineer who is developing machinery history records, but this program has not yet been developed to the point that maintenance trend analysis can be performed.

In addition to marginal maintenance history records, the availability of current equipment data is a weakness. Controlled files of equipment data with component model and serial numbers, parts lists, and engineering drawings are not always up to date. For example, the controlled valve list does not reflect the fact that the reactor building to suppression chamber air operated vacuum breakers were replaced with valves made by a different manufacturer in 1979.

The licensee's response to NRC initiatives is sometimes delayed. For example, corrective actions on a 1977 IE Circular relating to fuse coordination in Standby Liquid Control system Squib firing circuits, a 1979 IE Circular relating to defective diesel fire pump starting contractors, and a 1979 IE Circular on Limitorque valve operator locking devices were not completed until the NRC expressed concern for lack of responsiveness.

An event during the assessment period involving blockage of torus vacuum breaker valves by contractor erected scaffolding resulted in a Severity Level II violation and assessment of a civil penalty. Another event involved an unmonitored airborne release of radioactive material from the radwaste building ventilation system. These events are indicative of inadequate control of contractor work. After the assessment period, an event involving improper assesmbly and testing of a torus vacuum breaker valve was discovered. The action resulted in one torus vacuum breaker being inoperable for about 18 months during reactor operation. This event, which is still under review by the NRC, indicates that a strengthening of management control and procedural control over maintenance activities is necessary.

The licensee has implemented a program of increased management involvement in maintenance activities. In addition, recent staffing changes which have placed individuals with extensive maintenance background in upper-level management positions have resulted in an improving trend in this area.

Conclusion - Category 3

Board Recommendations - Increased inspection effort by the resident inspector.

GPU Nuclear Corporation Comments::

The evaluation period (November 1, 1980 through October 31, 1981) coincides with the reorganization of our Maintenance Department in September 1980 and as such, covers a transition period. Current activities now meet most of the goals of the reorganization and satisfactorily address many of the concerns of the above evaluation. The following paragraphs provide examples of how the reorganization has effected positive changes which, toward the end of the evaluation period and subsequent thereto, have become clear:

The second paragraph of the evaluation contains the statement "... there is a lack of corporate and plant management involvement in the review and prioritization of outstanding maintenance items ...". Procedure No. 105 "Conduct of Maintenance" ensures that management reviews and prioritizes each job order. The prioritization of job orders has been in effect since January of 1981 and consists of assigning one of four priorities. "Urgent 1" is the most immediate priority and indicates that work should be started within one day. This priority includes emergency maintenance initiated by the Group Shift Supervisor and other work considered likely to cause any of the following conditions within three days:

1. Personnel injury

2. Significantly increased contamination or radiation hazard

3. Unplanned, uncontrolled release of radioactive material to the environment in excess of normal release rates

4. Significant damage to safety-related equipment needed for safe plant shutdown

5. Violation of Technical Specifications

6. Immediate plant shutdown or load reduction

The remaining three categories involve problems of a lesser severity and guidance is given in the procedure for assigning priorities.

The second paragraph also refers to "... an apparent understaffing in maintenance departments ...". We have increased our first line supervisor to worker ratio. Currently, our average ratio is one supervisor per ten to twelve workers. The key maintenance positions are now filled and implementation of the desired program is being effected. We believe that our present emphasis on more effective use of supervision, emphasizing supervisor presence on the job site and better planning, in addition to the improved supervisor to worker ratio, will help effect the desired improvements.

The last sentence in the second paragraph states "There is a large backlog of outstanding work orders and frequent instances where job orders are closed out when only temporary repairs are completed, or where job orders considered to be of minor importance are cancelled." There are a large number of outstanding work orders, many as a result of our increased efforts to identify what work needs to be accomplished. However, as identified above, all job orders are prioritized according to specified criteria and the majority of outstanding job orders are in the minor category.

With regard to job orders being closed out inappropriately, Procedure 105 currently requires that a job order may only be cancelled by the applicable Maintenance Supervisor after obtaining concurrence of the initiating department supervisor. The procedure also identifies when temporary repairs are effected or further modification to the existing system is required, the temporary repair job order may be closed out. A new job order is initiated for execution when materials and/or the modification package is available.

With regard to the large number of long-standing lifted leads and jumpers referred to in the third paragraph, we have recently completed a review of and dispositioned all lifted leads and jumpers where possible. The unresolved remaining items have been identified and are being referred to engineering for permanent resolution.

The fourth paragraph in the evaluation discusses the preventative maintenance program. We feel this area has been greatly improved, since reorganization in September 1980. The present program includes electrical, mechanical, instrumentation and lubrication activities. Maintenance history cards are now updated whenever corrective or preventative maintenance is performed. Although past history of maintenance may, in some cases, be unretrievable, current practices will ensure that future trend analysis will be achievable.

Our responsiveness to NRC initiatives is now coordinated through the Licensing Department. Each item is assigned to the cognizant department and tracked by a formal program until completion of the assignment is effected. Outstanding items are brought to the attention of upper management and a summary report is provided to the Office of the President on a monthly basis. The current program should help ensure that events such as the examples cited in the evaluation will not be of a recurrent nature.

With regard to control of contractor activities, our corrective actions, as you are aware, are described in our response to the Notice of Violation dated September 21, 1981. The controls imposed have had a positive effect in that potential problems are identified and corrected prior to conducting work activities.

4. Surveillance - NRC Evaluation

During the previous assessment period, six routine unannounced inspections by region based inspectors, one Performance Appraisal Branch Inspection and routine inspection by the resident inspector identified three violations. The licensee had failed to perform surveillances on three occasions.

During the current assessment period, two region based inspections, one regional based team inspection, and routine resident reviews identified eight violations. The violations involved failure to conduct Technical Specification and ASME Section XI testing, inaccurate calibration, calibration and testing without procedure, and inadequate calibration data and procedural changes.

Corrective action was agreed to in an Immediate Action Letter dated April 8, 1981. The licensee agreed to upgrade his inservice test program to meet the requirements of ASME code Section XI by January 1, 1982. After the assessment period, region based inspectors found that the licensee had not completed all corrective action, in that a program for valve testing was not fully implemented. The licensee has since submitted a revised completion schedule to NRC:RI. The licensee stated that operational commitments and manpower shortages were the reasons for not meeting the commitments. The high number of violations and the failure to meet commitment dates without notification, indicate weakness in licensee management control in this area.

The large number of event reports resulting from instrument drift and the long standing nature of this issue indicates a need for high level management involvement in this area to achieve technically acceptable resolution. Violations resulting from missed surveillances, in particular a Severity Level IV violation involving failure to survey Emergency Service Water pumps following unacceptable surveillance on redundant pumps, indicate a need for more management attention in review of surveillance programs and assuring unambiguous acceptance criteria.

This need is further amplified by a violation that occurred after the assessment period. Three successive failures of an isolation condenser valve during operability testing followed by two successful operations of the valve, with no followup investigation to determine the cause of the failures, was interpreted by a member of the management staff as acceptable component performance.

Conclusion - Category 3

Board Recommendations - None

GPU Nuclear Corporation Comments:

Several violations that are referenced in the above evaluation involved a failure to comply with the surveillance requirements of recently approved Technical Specification changes. Our practice had been that follow-up to Technical Specification changes, such as the drafting of procedures, was not initiated until after NRC had approved the change. At present, the Surveillance Testing Program is administered by the Plant Engineering Department and compliance to Technical Specifications is accomplished through the maintenance of the surveillance testing schedule and implementing procedures.

To improve the implementation of Technical Specification changes, Plant Engineering will review all pending Technical Specification Change Requests and assure that all aspects relative to the specific changes are prepared in anticipation of approval. Once approved, the draft procedures will be reviewed again for changes, which may have occurred due to NRC review, and cycled through our internal cycle for final approval and implementation. Under this program, a change to Technical Specifications should be implemented within 30 days after issuance.

As you are aware, the common NRC practice of making Technical Specification changes "effective upon date of issuance" has been addressed by us in previous correspondence as being impractical to implement. We request that all changes to Technical Specifications become effective 30 days after receipt by the licensee unless requested otherwise.

In addition to the above planned actions, Plant Engineering has instituted training in the area of Technical Specifications. All engineering personnel will be required to attend. The classroom instruction will be presented by the BWR Licensing Manager and is scheduled to be conducted during May of 1982.

An integrated training program is being developed to educate each member of the Plant Engineering staff with regard to general BWR knowledge. Specific system responsibility will be assigned to individuals who will be expected to acquire knowledge comparable to operations personnel for the systems assigned to them. This is expected to raise the overall system level knowledge with regard to plant operations to a level considerably higher than before. Training in the specific system areas is expected to begin in July of 1982.

We feel the violations referenced in the evaluation regarding the Emergency Service Water Pumps and the Isolation Condenser Valve do not indicate a programmatic weakness in the surveillance program. The decision to declare the Emergency Service Water Pumps operable was based on previous knowledge and experience of system performance. Management's decision was based on knowledge that should have been incorporated into the procedure; however, in absence of procedure criteria, the pump should have been declared inoperable. With regard to the Isolation Condenser valve operability, the cause can be attributed to poor judgement. This event has been discussed with plant operations personnel and management direction to make such judgement conservatively from a safety standpoint has been reemphasized.

5. <u>Fire Protection and Housekeeping - NRC Evaluation</u>

Three inspections by region based inspectors and one Performance Appraisal Branch inspection during the previous assessment period identified no major programmatic weaknesses. Two violations were identified involving storage of combustible material in safety related areas.

During this assessment period, general fire protection activities and housekeeping were under continuous review by the resident inspector. No programmatic inspections were performed. No violations in this area have been identified. Two Licensee Event Reports were submitted; one, the result of mechanical failure of a fire hydrant, the other involving personnel error when a cable penetration barrier was found in a degraded condition.

Management involvement in this area is evident by the assignment of a full time fire protection engineer, recent procedural revisions to provide better control of combustible material, and improved surveillance of fire barriers.

There were considerable problems causing delays in the installation and testing of a storage tank and pumping system to provide an alternate source of water to the fire protection system.

Several recent events involving wetting and ultimate impairment of safety related electrical equipment have demonstrated inadequacies in the original fire protection safety evaluation. High level management attention to this problem since the end of the assessment period has resulted in an extensive survey of plant systems and a program to waterproof and protect electrical components.

Housekeeping has improved during this assessment period as a result of more management attention. Radiological housekeeping conditions are generally acceptable with no significant NRC inspection findings in this area. Poor general plant cleanliness and appearance; however, continues to reflect poor plant staff attitudes and lack of professionalism/pride. An improving trend has been noted as a result of increased management attention.

<u>Conclusion</u> - Category 2*

<u>Board Recommendations</u> - none

*This rating is assigned without regard to the licensee's position on 10 CFR 50, Appendix R provisions.

GPU Nuclear Corporation Comments:

As a result of increased management attention in the area of housekeeping, we feel there has recently been considerable improvements in plant cleanliness and appearance. We feel the continued emphasis will elevate the pride of the entire plant staff.

6. Emergency Preparedness - NRC Evaluation

No programmatic inspections were conducted in this area during the previous assessment period.

During the current assessment period, an emergency preparedness drill was observed by the resident inspector. The drill indicated weaknesses in the licensee's ability to implement the provisions of a revised emergency plan issued about one week prior to the drill. The licensee recognized the deficiencies which were also identified by several internal audits. An intensive upgrade program, which included significant increases in emergency planning staff, further emergency plan and procedure reviews, and intensive training, was begun.

An NRC team appraisal of emergency preparedness was conducted in January 1982 after the end of the assessment period. The appraisal identified significant weaknesses requiring corrective actions. These weaknesses included: required upgrading of emergency response facilities; improved capability for post accident sampling of stack effluent, reactor coolant, and containment atmosphere; emergency procedure improvement; and better definitions of the training program for emergency response personnel. The licensee's proposed corrective actions were discussed in a Confirmatory Action Letter dated February 18, 1982.

An NRC team observation of a major emergency preparedness exercise was conducted in March 1982. This observation determined that the licensee had demonstrated the capability to implement the provisions of the emergency plan to adequately protect the public health and safety during an accident, however, areas for improvement were noted and discussed with the licensee.

The licensee failed to meet the February 1, 1982 deadline for installation of a Public Notification System and was issued a Severity Level III Notice of Violation. Forty-five warning sirens were installed and tested by March 5, 1982. The final siren was installed and tested on March 11, 1981.

Conclusion - Category 2

Board Recommendations - None

*This categorization has been assigned on the bases of additional information developed after the assessment period and without regard to resolution of the outstanding issue of the Confirmatory Action Letter of February 18, 1982.

GPU Nuclear Corporation Comments:

The last paragraph in the above evaluation contains two minor errors concerning the installation dates of our warning sirens. As we indicated in the response to the Notice of Violation, forty-five (45) warning sirens were installed and tested by February 26, 1982. The final siren was installed and tested on March 5, 1982. Since the SALP evaluation, we note that NRC, by their letter of April 28, 1982, has evaluated our overall response to this matter and advised us that they plan no further action.

7. Security and Safeguards - NRC Evaluation

During the previous assessment period, two routine inspections by region based inspectors, routine review of selected areas by the resident inspector, and one inspection by the Performance Appraisal branch identified no violations or evidence of programmatic weaknesses. During one inspection, allegations by a former security watchman, which had been published in a local newspaper, were reviewed but could not be substantiated.

During the assessment period, two routine inspections by region based inspectors identified 7 violations. Six Severity Level IV violations were identified involving failure to secure a vital area barrier, use of improper identification badges, failure to conduct key audits, failure to perform explosives detector performance tests, inadequate lighting in two areas, and failure to retain certain records. Licensee's corrective action on these items, which were identified in one inspection, were discussed in a management meeting during this assessment period.

One Severity Level V violation involving failure to properly control a vehicle within the protected area was identified in a subsequent inspection. The large number of violations are not indicative of major programmatic breakdowns. An inspection conducted since the end of the assessment period (December 7-11, 1981) identified no similar problems. Management attention is demonstrated by the prompt action to correct and prevent recurrence of the identified problems. Site management is generally responsive to security program requirements. Required reviews, audits and records are generally complete and show involvement by Corporate management. The security organization is well staffed with well defined responsibilities and adequately trained personnel. Procedural adherence is good with infrequent personnel errors.

Conclusion - Category 2

Board Recommendations - None

GPU Nuclear Corporation Comments:

None.

8. Refueling and Major Outage Activities - NRC Evaluation

During the previous assessment period, one region based inspection and frequent resident inspector reviews of refueling and outage activities identified two violations involving procedural inadequacies and procedural adherence. One of the violations involved a major breakdown of administration controls causing failure to remove control rod interlock bypass jumpers prior to control cell fuel reload. This violation received high level management attention by the corporate General Office Review Board and the Independent Safety Review Group.

During the current assessment period, one region based inspection of post refueling testing and reload analysis was conducted. No violations were identified.

One scheduled and frequent unscheduled maintenance outages occurred during the assessment period. Considerable improvements in scheduling and coordination of outage activities were noted. This is due primarily to the assignment of a full-time Programs and Controls Manager who oversees outage planning. Scheduling activities generally addressed key outage and outage recovery items.

A completed modification, under this program, will be accepted based on the completion of preestablished conditions. The conditions specified for each modification will be formulated at a planning meeting after construction activities have been authorized. Preestablished conditions being addressed include:

1. Training completed for operations personnel concerning the installed modification

2. All applicable operating procedures revised

3. Required spare parts identified

4. Preventative Maintenance Procedures written and Preventative Maintenance schedule updated

5. All applicable drawings revised

6. Surveillance procedures and the Master Surveillance schedule revised

The interfacing departments or divisions assigned responsibility for completion of the preestablished conditions will meet formally to verify and sign-off that the modification can be put into service.

The following departments will be involved as appropriate:

1.	Plant Operations	- Oyster Creek Division
2.	Plant Maintenance	- Oyster Creek Division
3.	Plant Engineering	- Oyster Creek Division
4.	Project Engineering	- Technical Functions
5.	Start-Up and Test	- Technical Functions
6.	Maintenance and Construction	- Maintenance and Construction
7.	Training and Quality Control	- Nuclear Assurance Division
8.	Configuration Control	- Technical Functions

Procedure No. 124 "System/Equipment Turnover After Modification" is presently being reviewed and revised to address the above program. Additional procedures, if deemed necessary, will be developed.

In addition to this program, Plant Engineering will assign an engineer as the "plant contact" for each modification authorized through the Technical Functions division. The intention of the plant contact is to provide Plant Engineering awareness and follow-up of the modification such that appropriate documents, i.e., operations, maintenance, and surveillance procedures, vendor's manuals spare parts list, etc., are in the development stage as the modification is progressing.

Some problems in the area of control of contractor work were noted as evidenced by one violation involving blocking of torus vacuum breakers by contractor erected scaffolding and an event involving an airborne release of radioactive material from the radwaste building ventilation system.

One region based inspection conducted after the asessment period, identified some weaknesses in the area of control of design changes and modifications. These findings, which are under review by NRC management, indicated that the management of the design changes and modification program is very fragmented with poor central control and review. Many procedures for the program are in draft form and many are still being prepared.

Training on modifications completed during outages is sometimes delayed until just prior to startup, and drawing revisions are sometimes delayed. This, together with insufficient management involvement in design change program, results in an occasional lack of coordination between engineering, construction, and operations staff during turnover of systems to operations control and in occasionally late implementation of revised procedures.

The licensee has a well staffed corporate technical engineering group. This group is still gaining site specific familiarity resulting in considerable reliance on contractors for engineering support.

Conclusion - Category 2

Board Recommendations - In light of the planned extended outage involving numerous and diverse modifications, increased inspection activity should be devoted to outage activities particularly during the early portion of the outage.

GPU Nuclear Corporation Comments

We have had under development since early 1981, an integrated and improved system of controls for work being done in the plant. Improvements have been and are being implemented on an individual basis. The improved system is scheduled to be in effect prior to the upcoming outage. The system will require a formal turnover to plant operations of all newly installed modifications.

9. Licensing Activities - NRC Evaluation

No specific assessment of licensing activities was performed during the prior assessment period; pertinent issues were included in other functional areas.

Licensing activities during the current assessment period included miscellaneous Technical Specification changes, a review of TMI Task Action Plan items, a major license amendment changing the license to GPU Nuclear Corporation, and replacement core spray sparger design.

The licensee's performance and management capabilities were generally adequate; however, the timeliness of responses has been poor with a two to three month time delay being the norm. Details of submittals are usually coordinated with the staff beforehand to establish requirements and clarity, and are generally good quality. However, some submittals relative to the Systematic Evaluation Program (SEP) and the TMI Task Action Plan (NUREG-0737) were not always complete and resulted in frequent requests by NRC for additional information. The licensee and his contractors have demonstrated adequate working knowledge of regulatory requirements and excellent level of technical competence. The licensee's staffing is generally adequate, but in view of planned modifications and possible SEP upgrade requirements, may require increases.

Conclusion - Category 2

Board Recommendations - None

GPU Nuclear Corporation Comments:

The third paragraph of the evaluation states, "... the timeliness of responses has been poor ...". While there have been cases where our response has been later than requested, we believe that a large factor in this has been the volume of requests and NRC's practice of setting unrealistic response dates. Requests made for information frequently require complex studies or analyses to be performed before an adequate response can be prepared, reviewed, and approved by upper management. We will continue to respond in a timely manner and to formally request extensions where appropriate.