

J.S. ATOMIC ENERGY COMMISSION

DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No.: 50-219/73-21

Docket No.: 50-219

Licensee: Jersey Central Power and Light Company (JCPL)

License No.: DPR-16

Madison Avenue at Punch Bowl Road

- Priority: -

Morristown, New Jersey 07960

\* Category: C

Location: Oyster Creek Nuclear Station (OC), Forked River,  
New Jersey

Type of Licensee: 640 MWe, BWR (GE)

Type of Inspection: Special, Announced (Emergency Planning)

Dates of Inspection: December 10-12 and 18, 1973

Dates of Previous Inspection: November 29, 1973

Reporting Inspector: *Charles O. Gallina*  
C. O. Gallina, Ph.D., Radiation Specialist

1/16/74  
Date

Accompanying Inspectors: \_\_\_\_\_

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Date

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Date

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Date

Other Accompanying Personnel: None

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Date

Reviewed by: *J.P. Stohr*  
J. P. Stohr, Senior Environmental Scientist

1/13/74  
Date

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\_\_\_\_\_  
Date

*B/665*

SUMMARY OF FINDINGS

Enforcement Action

None

Licensee Action on Previously Identified Enforcement Items (Emergency Planning)

None identified

Design Changes

None

Unusual Occurrences

None

Other Significant Findings

Current Findings

No violations were identified during this inspection.

Status of Previously Reported Unresolved Items (Emergency Planning)

None identified

Management Interview

A management meeting was held at the Oyster Creek Station (OC) on December 12, 1973 at the conclusion of the inspection at the site.\* The following individuals were in attendance:

Dr. C. O. Gallina, Radiation Specialist, AEC-RO:I  
Mr. D. A. Ross, Manager, Nuclear Generating Stations, JCPL  
Mr. J. T. Carroll, Station Superintendent, OC  
Mr. J. L. Sullivan, Operations Engineer, OC  
Mr. E. D. Scalsky, Radiation Protection Supervisor, OC

\* A meeting was held as part of this inspection at the OC site on December 18, 1973 with individuals representing the State of New Jersey. Although licensee representatives were in attendance at this meeting, a separate management meeting was not held at this time.

During the management meeting the following items were discussed:

A. Emergency Implementation Procedures

The licensee stated that emergency implementation procedures would be reviewed and upgraded where applicable so as to provide specific predetermined criteria for utilization in the declaration of specific classes of emergencies, as well as providing specific actions to be followed in response to all potential emergency situations at the OC site. The licensee also stated that procedures would be developed to provide for the review of the Emergency Plan and the associated implementation procedures on a routine basis. (Details, Paragraph 3)

B. Communications

The licensee stated that based on discussions with the inspector, the existing communications systems at the OC site would be re-evaluated and upgraded where necessary to ensure that communications could be maintained under all emergency conditions and with members of both onsite and offsite emergency monitoring teams. The licensee stated that these systems would also be reviewed to ensure that off-site assistance could be acquired under all emergency conditions. (Details, Paragraph 4)

C. Emergency Vehicles

The licensee stated that the current status of company vehicles permanently assigned to the OC site for use during an emergency would be evaluated. If the results of this evaluation so indicated, the licensee stated that additional vehicles would be permanently assigned to the site. (Details, Paragraph 5)

D. Alternate Emergency Control Center

The licensee stated that provisions would be included in the emergency implementation procedures to meet the contingency of having the primary emergency control center untenable during an emergency. (Details, Paragraph 6)

E. Area Maps and Overlays

The licensee stated that the current map being used in conjunction with emergency planning activities at the OC site would be re-evaluated with respect to the possible inclusion of specific monitoring sites for use by area monitoring teams in the event of offsite releases. In conjunction with these maps, diffusion overlays would be constructed

which, when coupled with other decisional aids, would enable the rapid determination of the extent, magnitude, and area of maximum deposition in the event of radioactive releases offsite. (Details, Paragraph 7)

F. Letters of Agreement

The licensee stated that letters of agreement would be provided as soon as possible for all non-JCPL organizations involved in the implementation of the OC Emergency Plan. (Details, Paragraph 8)

G. Medical Emergency Procedures

The licensee stated that medical emergency procedures were currently being formulated for the OC site and would be included in the emergency implementation procedures. (Details, Paragraph 9)

H. Search and Rescue Procedures

The licensee stated that search and rescue procedures would be developed in order to ensure that an effective rescue could be implemented in the event that unaccounted for, or injured personnel must be located within the OC plant during an emergency situation. (Details, Paragraph 10)

I. Recovery and Re-entry Procedures

The licensee stated that procedures would be developed for recovery and re-entry operations. These procedures would provide specific details and criteria to be utilized during these operations. (Details, Paragraph 11)

J. Natural Disasters and Toxic Releases

The licensee stated that procedures would be provided to cover the consequences of various types of natural disasters including floods, tornadoes and earthquakes. These procedures would not be as detailed, however, as those procedures normally utilized for reactor operations. The licensee also stated that toxic releases would be evaluated from the standpoint of acid and caustic releases as they pertain to water treatment facilities. Procedures to handle these latter contingencies would be developed accordingly. (Details, Paragraph 12)

K. Emergency Area Monitoring

The licensee stated that detailed procedures would be developed with respect to emergency area monitoring. These procedures would incorporate the use of area monitoring teams with appropriate sampling

instrumentation to enable a rapid evaluation of the extent and magnitude of radioactive releases from the OC site. (Details, Paragraph 13)

L. Facility Plot Plan

The licensee stated that a facility plot plan would be evaluated and if found feasible be made available in the control room and in the emergency control center. Delineating various critical areas of the OC site, the plot plan would enable rapid assessment of radiation hazards by having dose rates plotted in critical areas as this information is supplied by site monitoring teams. (Details, Paragraph 14)

M. Personnel Call Lists

The licensee stated that all personnel call lists would be upgraded to include the names of all critical personnel at the OC site, as well as any individual or consultant within the corporate or associated organizations having special functions or qualifications. The list would include the location of those individuals within the organization, home addresses, and phone numbers at which these individuals could be reached during on and off hours. (Details, Paragraph 15)

N. Emergency Environmental Sample Collection

The licensee stated that procedures would be developed to enable, in the event of an offsite emergency, a rapid collection and evaluation of all appropriate environmental sampling stations utilized on a routine basis during non-emergency conditions at the OC site. (Details, Paragraph 16)

O. Onsite Release Rate

The licensee stated that an effort would be made to develop procedures which would allow the estimation of onsite release rates from the OC unit under emergency conditions. (Details, Paragraph 17)

P. Emergency Equipment

The licensee stated that emergency equipment inventories would be reviewed and upgraded where necessary and that specific procedures would be developed in order to provide for periodic inventories and operational checks of all emergency equipment. (Details, Paragraph 18)



Q. Accounting Procedures

The licensee stated that specific detailed procedures would be developed to account for all plant personnel in the event of an emergency. The licensee also stated that these procedures would cover the accountability of any construction personnel during the construction phases currently underway at the OC site. (Details, Paragraph 19)

R. Emergency Documentation

The licensee stated that specific procedures would be developed to provide for adequate documentation under emergency conditions but that the specific methods to be utilized had not been selected as of this time. (Details, Paragraph 20)

S. TLD Monitoring Systems

The licensee stated that consideration would be given to the utilization of TLD's onsite to provide an additional indicator of radioactive releases in the event of an emergency. (Details, Paragraph 21)

T. Emergency Security Force Procedures

The licensee stated that specific procedures would be developed delineating the duties and responsibilities of the licensee's security forces under emergency conditions. These procedures would include part, but not all, of the licensee's security plan. (Details, Paragraph 22)

U. Emergency Training

The licensee stated that a review would be made with respect to the training of all plant personnel on the implementation of the Emergency Plan with intensive training being given to all supervisory personnel or those with critical responsibilities in the event of an emergency. (Details, Paragraph 23)

V. Emergency Training Exercise

The licensee stated that a major training exercise, incorporating as many phases of the overall Emergency Plan as applicable would be conducted at the OC site prior to the issuance of a full term operating license for the OC plant. (Details, Paragraph 24)

W. Emergency Call Board

The licensee stated that the concept of an emergency call board would be evaluated to enable personnel responding to an emergency to obtain predetermined instructions, thereby providing rapid implementation of preliminary phases of the emergency plan prior to the arrival of a supervisory emergency director. (Details, Paragraph 25)

## DETAILS

### 1. Personnel Contacted

Mr. D. A. Ross, Manager, Nuclear Generating Stations, JCPL  
Mr. J. T. Carroll, Station Superintendent, OC  
Mr. J. L. Sullivan, Operations Engineer, OC  
Mr. J. P. Maloney, Operations Supervisor, OC  
Mr. E. D. Scalsky, Radiation Protection Supervisor, OC  
Mr. D. A. Arbach, Radiation Protection Foreman, OC  
Mr. D. E. Kaulback, Radiation Protection Foreman, OC  
Mr. C. G. Amato, Assistant Chief, Bureau of Radiation Protection,  
Department of Environmental Protection, State of New Jersey  
Mr. E. J. Fisher, Radiation Physicist, Bureau of Radiation Protection,  
Department of Environmental Protection, State of New Jersey  
Mr. J. DeFilippo, Administrator, Community Hospital (Toms River, N. J.)

### 2. General

This inspection was a detailed review of the OC Emergency Plan and associated emergency implementation procedures to determine the overall adequacy of the emergency planning package for the OC site. All deficiencies discovered with respect to the emergency plan and associated implementation procedures, whether factual (based on completed available procedures) or conceptual (based on discussions with the licensee) were reviewed with management personnel. The apparent deficiencies ranged from minor items such as the use of non-specific terms in defining various action levels, to major items involving the omission of critical procedures. After discussions with the inspector, the licensee agreed to initiate an overall review and upgrading program with respect to all deficiencies discovered in the emergency implementation procedures. Details of these deficiencies follow in Paragraphs 3 through 25.

An in-plant inspection was conducted as part of this phase of the inspection effort. Areas covered included the control room with associated emergency equipment and instrumentation, emergency control center equipment, evacuation routes, emergency communications equipment, general emergency equipment, and other various areas of the OC site.

In addition to the above review, meetings were conducted by the inspector with the offsite agencies utilized by the licensee to implement various sections of the OC Emergency Plan. Details of these meetings are summarized in Paragraphs 26 and 27.



3. Emergency Implementation Procedures

Upon review of the licensee's emergency implementation procedures, the inspector noted that although four classes of emergencies were described, no specific action levels had been provided by the licensee for each of the four classes. The inspector stated that emergency planning should cover all possible contingencies from a major reactor related accident to fires, natural disasters, releases of toxic gases and harmful substances, and transportation accidents (onsite and off-site in certain instances). The inspector also stated that the emergency implementation procedures should consider a range of consequences from accidents affecting only employees onsite to releases of radio-activity which could affect members of the public in unrestricted areas. The inspector noted that existing procedures did not in all cases identify protective measures or action levels (predetermined values of appropriate monitored variables requiring the implementation of the Emergency Plan).

(NOTE: Some protective action levels were delineated in the OC Emergency Plan but were not included in the associated implementation procedures in all cases.)

The inspector also noted that the emergency implementation procedures reviewed did not contain specific procedures to provide for the routine review and revision of the Emergency Plan with associated procedures. The licensee stated that detailed procedures would be developed to cover these areas, providing specific authority and responsibility for conducting these functions. The licensee also stated that these procedures would include provisions for routine review by both plant and upper management personnel, periodic recontact with offsite agencies, updating of personnel phone lists, distribution of revised material and other related responsibilities.

Following the detailed discussions between the inspector and the licensee, the licensee stated that the entire area of emergency planning would be reviewed in detail and upgraded as necessary in order to ensure that all potential contingencies at the OC site could be effectively brought under control. The licensee also stated that predetermined criteria would be developed so that the Emergency Plan could be implemented as effectively as possible under all emergency conditions. Although no specific timetable was discussed with the inspector, the licensee stated that the review and upgrading of the emergency implementation procedures would be completed prior to the issuance of a full term operating license for the OC plant.

4. Communications

The inspector reviewed the communication systems being utilized at the OC site in conjunction with various aspects of emergency planning. The inspector noted that various critical phases of the communications systems were not tied to the vital bus, and therefore would be unavailable in the event of a loss of outside power. The inspector also noted that portable, battery operated, two-way communication systems had been provided for various aspects of emergency operations, but that the number of these radios was limited and the range of the radios had not been checked further than two miles radius from the plant. The inspector noted that an assumption is normally made that the only equipment available during an emergency is that equipment connected directly to a vital bus or battery powered. The licensee stated that telephone communications in the control room were provided with a means of external power in the event that offsite power was unavailable but that the entire communications system at the OC site would be reviewed in order to ensure that constant communications could be maintained between site and area monitoring teams. The inspector stated that communications equipment utilized to notify offsite agencies should also be evaluated from this standpoint. The licensee stated that these aspects of the communications system would also be reviewed and should this review indicate that additional equipment was required (for example, portable base radio for emergency control center or additional battery operated two-way radios for site monitoring teams), appropriate equipment would be provided.

5. Emergency Vehicles

The inspector noted that there were no vehicles specifically assigned to the OC site for use during an emergency for area or site monitoring functions, transfer of emergency equipment and other transportation responsibilities. The licensee stated that several company vehicles were available at the site but that at present there was no guarantee that these vehicles would be available in the event of an emergency. The licensee did state, however, that he believed that a simple administrative procedure could correct this deficiency and that this matter would be reviewed immediately with appropriate changes initiated as required. The licensee also stated that consideration was being given to having a specific emergency vehicle assigned to the site, outfitted with appropriate equipment for emergency uses.

6. Alternate Emergency Control Center

The OC Emergency Plan indicates that all emergency activities at the OC site can be controlled from two locations, namely, (a) the control

room and (b) the emergency control center. The inspector noted that the control room would be tenable under all possible conditions according to statements by the licensee, but that the possibility existed that the emergency control center could become untenable during the course of an incident. The licensee stated that he was aware of this problem and that consideration was being given to the acquisition of an alternate emergency control center. The licensee stated that as a possible solution to this problem, plans were being considered to establish the permanent emergency control center in a trailer which could be easily moved to an alternate site should conditions warrant. The licensee stated that no firm decision could be made at this time pending the completion of all evaluations in this area.

7. Area Maps and Overlays

In connection with the licensee's responsibility for emergency offsite area monitoring, the inspector discussed and reviewed various methods of determining the magnitude of all offsite releases, as well as the point of maximum deposition. The inspector noted that the licensee had prepared an area map which encompassed nearby population centers. The inspector noted, however, that offsite monitoring teams went to specified monitoring locations north and south of the OC site regardless of the direction in which the radioactive plume was blowing. The inspector also noted that the single diffusion overlay being utilized in conjunction with this map was based on fixed conditions resulting from a design basis accident, and as such provided an inadequate estimate of the real-time behavior of the radioactive plume under meteorological conditions existing at the time. It was also noted that the range of the area map only extended to approximately two miles from the stack on the OC site. The inspector discussed the advisability of having specific fixed monitoring points to assist site area monitoring teams, but that the specific sites to be monitored should be assigned at the time of the emergency and should exist in all sectors surrounding the plant and not be limited to stations north and south. The inspector stated that the specific monitoring points could be numbered and/or lettered according to compass sectors in order to ensure that the information obtained from area monitoring teams was correctly recorded in the emergency control center. The licensee stated that the matter of area maps would be reviewed and that modifications would be made where necessary.

The inspector discussed in detail the concept of standard meteorological overlays in which  $\chi/Q$  dispersion factors were

plotted as a function of given meteorological conditions. The inspector also examined meteorological equipment available at the site and noted that although operating properly, the equipment was inadequate to provide sufficient depth of information and consequently limited the ability of the licensee to arrive at a significant meteorological assessment under emergency conditions. The licensee stated that he was aware of the shortcomings in the meteorological equipment and that plans were already underway for the upgrading of this equipment in conjunction with upcoming construction activities at the OC site. The licensee also stated that the diffusion overlays discussed would be reviewed and evaluated in detail and provided as part of the overall emergency planning at the site as soon as arrangements could be made with appropriate consultants in this area.

8. Letters of Agreement

In reviewing the OC emergency plan and associated procedures, the inspector noted that letters of agreement had not been obtained from all outside agencies utilized by the licensee to implement the Emergency Plan. The licensee stated that the Emergency Plan was currently under review and that definite decisions had not been made at present as to which offsite agencies would be utilized in various emergency capacities. The licensee stated that this evaluation was expected to be completed shortly and that requests for letters of agreement would be sent out to all affected agencies in the near future. The licensee stated that no problem was anticipated receiving these letters from the aforementioned organizations.

9. Medical Emergency Procedures

In reviewing various areas of the OC Emergency Plan, the inspector noted that potential situations could arise where rapid medical assessment on the part of plant personnel would be required. These areas included not only decisions as to transfer of injured personnel to medical facilities but also decisions relating to the movement of contaminated personnel when such moves would be contraindicated by the injury sustained. When questioned as to the availability of personnel with qualifications to make the decisions under emergency conditions, the licensee stated that several individuals at the OC site had received basic first aid training. The inspector reviewed the number and degree of such training and discuss the desirability of additional training in this area. The inspector did note, however, that the licensee had made arrangements with two area physicians in order to provide 24 hour medical coverage for the OC site. These



physicians could be readily called to the plant where treatment of injured personnel could be accomplished onsite. The inspector also reviewed licensee plans to fully equip an emergency treatment facility at the site. The licensee stated that equipment and other aspects of this treatment facility had been planned and detailed by the two physicians who would be using the facility in conjunction with representatives of Radiation Management Corporation (RMC), the licensee's consultant in the medical area. (See also Paragraph 26) The licensee stated that the entire area of first aid training would be re-evaluated at the OC plant and, should the results of this evaluation so indicate, some additional intensive first aid training would be given to a sufficient number of plant personnel in order to ensure adequate coverage at all times at the OC site.

10. Search and Rescue Procedures

In reviewing the medical emergency procedures prepared by the licensee (See Paragraph 9 above) the inspector noted that procedures had not been provided to cover the possibility that injured individuals would not be able to seek assistance of their own volition. The licensee stated that this area would be evaluated and that on the basis of this evaluation, search and rescue procedures would be provided as needed. The inspector noted that in the case of search and rescue teams, a third member would be advisable to accompany the team to the site of the injury, provide assistance in putting on equipment, remove debris, open doors, and time the rescue team in order to minimize exposure inside highly contaminated areas. The licensee stated that team composition would be considered and that the emergency implementation procedures would be based on a three man team where possible, but a description of the team would state there would be made up of a minimum of two individuals.

11. Recovery and Re-entry Procedures

The licensee and inspector discussed various aspects of the emergency implementation procedures as they pertained to the recovery and re-entry aspects of an incident at the OC site. Following these discussions, the licensee stated that recovery and re-entry procedures would be provided and would include radiation management procedures, would delineate or reference protective measures for personnel performing recovery operations, detail procedures for determining the magnitude and extent of contamination with associated safety criteria, discuss potential recurring difficulties, and describe the potential for further extrapolation of the emergency.



12. Natural Disasters and Toxic Releases

In reviewing the OC emergency implementation procedures, the inspector noted that although some natural disasters were considered as part of emergency procedures, the scope and depth of these procedures was limited. The licensee stated that these procedures would be reviewed in order to provide sufficient depth of coverage in these areas where necessary. The inspector also noted that toxic liquids such as acids and caustics required for water treatment processes as well as other significant amounts of toxic chemicals were utilized and/or stored in the plant. Should releases of this material occur, the inspector noted that emergency action on the part of plant personnel would be required. The licensee stated that this matter would be considered and reviewed further and that procedures would be provided to handle these contingencies.

13. Emergency Area Monitoring

The inspector noted that emergency procedures for offsite area monitoring would be required and discussed with the licensee various critical aspects of these procedures including the determination and evaluation of the extent, magnitude, and point of maximum deposition of all offsite releases. The inspector noted that emphasis should be placed on a rapid assessment of these parameters so that the most accurate estimate of releases could be obtained in the least amount of time. The licensee and inspector discussed the fact that all activities in the public domain involving in-depth surveys, evacuation and protective actions procedures, utilization of state agencies and other state related operations were normally the responsibility of the state but that the licensee would normally be responsible for all preliminary evaluative functions prior to the arrival of the state upon the scene. The inspector also noted that area monitoring teams should be equipped with procedures allowing them to effectively monitor the environment under emergency conditions and they should also be equipped with two way communications so that this information could be relayed to the emergency control center as soon as possible. The inspector noted that the licensee should not rely solely on emergency monitoring stations operated on a routine basis and that provisions should be made to cover at least a 10 mile radius from the center point of the site (ventilation stack). The licensee stated that emergency implementation procedures relating to emergency area monitoring would be formulated accordingly.

14. Facility Plot Plan

The inspector and licensee discussed means which could be provided in the emergency implementation procedures or associated emergency planning in order to assist the emergency coordinator in determining the extent and magnitude of radiation dose levels at the OC site itself. Following these discussions, the licensee stated that the construction of a facility plot plan would be evaluated. This plot plan would designate all critical areas at the OC site so that the emergency coordinator could write in various radiation dose levels in these areas as they are reported to him by the site monitoring teams. Located in the control room as well as the emergency control center, these plot plans could provide an instantaneous comprehensive evaluation of all onsite radiation hazards. The inspector noted that the same objective could be obtained by having the plot plan maps incorporated into the emergency kits. The licensee stated that this matter would be considered in the evaluation of the entire concept.

15. Personnel Call Lists

The inspector noted that the existing Emergency Plan did contain the phone numbers of certain supervisory personnel at the OC site and selected offsite individuals and agencies, but as presented these call lists were not complete from the standpoint of (a) not including all critical personnel and (b) not including sufficient information to facilitate contact of these individuals under emergency conditions. The licensee stated that all call lists would be updated to include all critical personnel at the OC site, individuals with special functions or qualifications within the JCPL-GPU parent organization, and all outside individuals and agencies essential for effective implementation of the OC Emergency Plan. The licensee also stated that the list of numbers would be kept in a single convenient location within the plan and would contain the location of the aforementioned individuals during both on and off hours. The licensee also stated that consideration would be given to the inclusion of home addresses along with appropriate phone numbers for the individuals listed but that a further evaluation would be required in order to decide if such information should be disseminated to all people holding the Emergency Plan or associated procedures.

16. Emergency Environmental Sample Collection

The inspector and licensee discussed the need of the emergency implementation procedures to contain provisions to enable the rapid evaluation of all currently utilized monitoring stations. Following discussions with the inspector, the licensee stated

that detailed procedures would be prepared to provide for the rapid collection and evaluation of all environmental samples currently being taken as part of the routine environmental monitoring program for the OC site, or those samples applicable to the conditions existing at the time. The inspector stated that these procedures would be required to be activated following a general emergency (Class IV) where releases were known to have gone beyond the site boundary of the OC plant and also under site emergency conditions (Class III) in order to ensure that no releases had exceeded the site boundary. The inspector noted, however, that these samples would be taken in a different time frame than the emergency area monitoring samples which normally were taken within hours of the initiation of the emergency. These sample collections in question could be done within 24 to 48 hours following the emergency.

17. Onsite Release Rate

The inspector and licensee discussed the need for the emergency implementation procedures to contain provisions for the determination of the onsite release rate from the facility during emergency conditions which subsequently could be used to estimate the offsite conditions such as thyroid and whole body exposures. The licensee stated that data relating to the development of such procedures would be evaluated upon completion of a review of the problem. The feasibility of determining onsite release rates would be investigated further and appropriate procedures developed as necessary.

18. Emergency Equipment

The inspector reviewed the emergency equipment available at the OC site and found current inventories in conformance with those described in the OC Emergency Plan. The inspector noted that the majority of emergency equipment was stored in kit form thereby enabling the licensee to rapidly transfer this equipment to various locations as necessary. The inspector questioned the licensee, however, as to the adequacy of equipment currently being maintained within the control room. The licensee agreed to reevaluate the equipment status as it pertained to the overall emergency planning at the OC site.

The inspector questioned the licensee as to procedures being utilized to inspect emergency equipment on a routine basis. The licensee stated that although this equipment was inspected on a routine basis that detailed procedures would be developed to ensure that all equipment was available, operable, and calibrated on a routine basis and after each use.

19. Accounting Procedures

In reviewing emergency implementation procedures for the OC site, the inspector noted that the accounting procedures had not been specifically provided. The inspector also noted that a significant amount of construction activity was soon to be underway at the OC site in conjunction with the construction of the second nuclear unit on the site (Forked River) and discussed with the licensee the need of providing accountability of construction personnel during this interval. The licensee stated that this problem had been recognized but that procedures in this area had not been provided. Subsequent to further discussions with the inspector, the licensee stated that this problem would be evaluated in detail and specific procedures provided including provisions relating to the accountability of construction personnel.

20. Emergency Documentation

The inspector noted through discussions with the licensee that emergency documentation would be more in the form of an after-the-fact report rather than a real time recordkeeping. The licensee felt that any requirements for real time documentation with the exception of recording critical parameters would be difficult under emergency conditions. The inspector acknowledged the difficulty involved and stated that the objective could be reached through the use of pre-planned forms and check lists, procedures, training, and even the use of special equipment where necessary such as tape recorders. The licensee stated that an effort would be made to evaluate this problem and to arrive at some acceptable form of emergency documentation. The licensee also stated that training and implementation procedures along these lines would be developed after the method of documentation had been selected.

21. TLD Monitoring

The inspector and licensee discussed the various advantages of monitoring the site boundary by the use of thermoluminescent dosimeters (TLD's) in order to be able to immediately evaluate the extent of radioactive releases on and offsite. The licensee stated that this matter would be taken under consideration but that no firm commitment as to the utilization could be made at this time.



22. Emergency Security Force Procedures

The inspector discussed with the licensee various aspects of emergency implementation procedures which involved the licensee's security forces under emergency conditions. The licensee stated that security procedures were provided as part of the overall plant security package. The inspector noted that security personnel were often utilized during emergencies in conjunction with accounting procedures and they also had additional duties such as equipment transfer and access control. The licensee agreed to review this problem and stated that detailed procedures would be developed for security personnel to cover all areas in which their potential utilization during an emergency would be involved.

23. Emergency Training

The inspector and licensee discussed the various aspects of emergency implementation procedures and emergency planning which pertained to the specific provision covering the training of OC personnel with respect to these procedures. The inspector also pointed out that under emergency conditions individuals could be called upon to perform duties not normally within the area of their expertise. In addition, the inspector noted that many emergency procedures were not routine (use of medical equipment, meteorological overlays, self-contained breathing apparatus, portable air samplers, etc.) and thereby would require specific training. The licensee agreed and stated that although some detailed training was given at present, a further evaluation would be made and a definite program developed to provide routine training of all personnel on a regular basis, with specific intensive training given to all individuals who would assume positions of authority during an emergency.

24. Emergency Exercise

The inspector noted that the Emergency Plan stated that emergency exercises would be conducted regularly and discussed with the licensee various emergency implementation procedures which would provide the details on how these drills would be planned, reviewed by management, conducted, observed and evaluated. The licensee and the inspector also discussed major drills simulating serious medical injuries with the subsequent transfer to the nearby hospital (See Paragraph 26) and a simulation of a large scale accident (e.g., design basis accident). The licensee stated that specific procedures would be developed to cover all aspects of the emergency



exercise, planning and evaluation, and also include provisions for documentation of results. The licensee also stated that plans would be initiated to conduct a large scale emergency exercise prior to the issuance of a full term operating license for the OC plant. (The large scale exercise would incorporate as many applicable phases of the licensee's emergency plan as feasible.)

25. Emergency Call Board

In the event of an emergency at the OC site, several employees would respond to the scene from various locations within the plant and from various offsite locations. The inspector noted that in such a situation, the implementation of various sections and phases of the Emergency Plan would require some means whereby specific responsibilities and authority could be established in a minimum amount of time. A system such as a call board was discussed with the licensee, whereby team members could indicate their presence and obtain pre-developed criteria, guidance or instructions, and thereby implement emergency procedures in a short a time as possible. The licensee felt that such a system would be helpful and stated that the possible development of this system would be evaluated and incorporated into the emergency implementation procedures if deemed feasible.

26. Meeting with Toms River Community Hospital

The OC Emergency Plan utilizes the Community Hospital (CH) in Toms River, New Jersey as its primary medical treatment facility for injuries at the OC site which do not involve massive overexposures or critical injuries requiring special surgical procedures. Personnel sustaining these latter categories of injuries are transferred to the Hospital of the University of Pennsylvania under the management of the Radiation Management Corporation (RMC). (NOTE: Further details on the RMC facilities are contained in Paragraph 27) A meeting was held with the administrator of CH on December 12, 1973 in Toms River, New Jersey. The administrator stated that contact had been initiated and maintained by the licensee. The administrator also stated that the responsibilities of the hospital during an emergency had been made clear to him as well as notification procedures and associated criteria utilized to implement those procedures. The administrator stated that the morgue had been set aside for use in treating contaminated patients and that all emergency vehicles were provided by various volunteer rescue squads from the area. The administrator also stated that monitoring and protective equipment

required during transfer from the OC site and subsequent treatment at the hospital was provided part by the licensee and in part by RMC. The administrator stated that the hospital contained 237 beds and 11 emergency treatment rooms in addition to the segregated area provided for contaminated personnel. The administrator stated that there were approximately 75 active physicians permanently assigned to the hospital with additional physicians available for consulting purposes. Two physicians had been specially trained in the handling of contaminated injuries. The administrator stated that the nursing staff consisted of approximately 175 nurses (LPN and RN). The administrator stated that notification of a radiological emergency by the licensee would be by telephone and that although no drills had been conducted with the licensee within the past year, that a major drill was scheduled for the early part of 1974 in conjunction with the normal radiological training provided by RMC.

27. Hospital of the University of Pennsylvania (Radiation Management Corporation)

In the event of severe medical radiation emergencies, JCPL has made arrangements with the Radiation Management Corporation (RMC) of Philadelphia, Pennsylvania for medical assistance and consultation. Although no meeting was held with representatives of RMC during this inspection, the inspector did meet with representatives of RMC in connection with the inspection of another facility. The OC Emergency Plan utilizes RMC to supervise the total management of radiation accidents. RMC, in conjunction with the Hospital of the University of Pennsylvania has established an advanced Radiation Medicine Center. The center has available:

- a. Physicians, nurses, health physicists, radiochemists and other medical personnel trained in the care of radiation accident victims.
- b. A Radiosurgery Decontamination Suite to perform major surgery on radioactively contaminated patients while protecting attendants from unnecessary exposure to radiation.
- c. A Radiation Exposure Treatment Suite for the treatment of the severely overexposed patient. This capability includes reverse isolation, bone marrow transplantation and white blood cell transfusion in addition to the various medical specialities available in a large medical center.
- d. A Radiation Exposure Evaluation Laboratory with the following capabilities:

- (1) Film and TLD evaluation
  - (2) Radiobioassay
  - (3) Whole Body Counting
  - (4) Chromosome analysis
  - (5) Phantom mock-up
  - (6) Radionuclide analysis of environmental samples using alpha, beta, and gamma spectroscopy
  - (7) Neutron activation analyses
- e. Means of surface and air transportation with provisions for radioactively contaminated patients.

In addition to the special evaluation, segregation and treatment rooms listed above, the Hospital of the University of Pennsylvania contains over 1000 additional beds. Six or seven physicians at the hospital, including three surgeons, have had intensive training and experience in the handling of radiation injuries. In addition, one complete surgical team is available with training in radiation procedures. RMC stated that notification from the licensee was possible by telephone or a radio-page system. The radio-page system is utilized through the Philadelphia Electric Company Dispatcher for continuous coverage during off hours. RMC also stated that training is provided to all personnel annually and that drills are scheduled on an annual basis involving both the site and the local support hospital.

28. Meeting with the State of New Jersey

The agency with the responsibility of offsite radiological health protection at the OC site is the Bureau of Radiation Protection (BRP) of the Department of Environmental Protection of the State of New Jersey. A meeting was held with representatives of this agency (BRP) on December 18, 1973 at the OC site. Representatives from BRP stated that contact had been initiated and maintained by the licensee. These representatives also stated that the organization for responding to an emergency at the OC site would generally be preceded by an order declaring a "state of emergency." By means of this declaration, various legal statutes would come into force thereby implementing the overall emergency response within the state. BRP stated that the emergency could be declared by either (1) the Governor of the state, (2) the Director of Civil Defense and Disaster Control, (3) the county civil defense director, and (4) the head of local government (not including county freeholders). BRP stated that although it would be the primary agency involved the overall organization responding to such an emergency would

be local civil defense organizations taking orders from the civil defense director. Each of the individuals with the authority for declaring the emergency would also possess the authority for ordering evacuation under emergency conditions. BRP stated that around-the-clock coverage is provided at present either through the standard state police switchboard or a specially designated state police duty officer. BRP stated that the initial call from the OC site would be made to the New Jersey State Police who in turn would recall the site to confirm the actual state of emergency. The state police would then call BRP who would also re-contact the site via a special unlisted number and obtain required technical information relating to the emergency conditions existing at the site. BRP stated that all notification procedures and associated criteria utilized to implement those procedures had been reviewed with the licensee and were contained in the PIPAG (Procedures to Implement Protective Action Guides) agreement entered into between the licensee and the State of New Jersey.

BRP stated that a representative of that agency would normally require approximately 40 to 60 minutes to reach the OC site but that this time could be reduced significantly if a state police helicopter were utilized and that provisions for such utilization were currently being formulated. The primary communications network utilized would be the normal state police system. BRP stated that arrangements had been made with local radio and TV stations to alert citizens in the event of an emergency at the OC site. BRP stated that although provisions of the PIPAG agreement called for a minimum of one communications drill per year with the licensee, that no full scale drill involving response of BRP had been conducted to date. BRP stated that such a drill was in the planning stages for the near future.