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

Region I

Report No. 79-07

Docket No. 50-219

License No. DPR-16 Priority -- Category C

Licensee: Jersey Central Power and Light Company

Madison Avenue at Punch Bowl Road

Morristown, New Jersey 07960

Facility Name: Oyster Creek Nuclear Power Station

Inspection at: Toms River, New Jersey

Inspection conducted: April 18-20, 1979 and July 19 and 20, 1979

Inspectors: _____ 1/21/80
J. R. White, Radiation Specialist — date signed

_____ 1/21/80
D. R. Neely, Radiation Specialist — date signed

_____ 1/21/80
R. H. Smith, Investigation Specialist — date signed

Approved by: _____ 1/31/80
H. W. Crocker, Acting Chief, Radiation Support Section, FF&MS Branch — date signed

Inspection Summary:

Inspection on April 18-20, 1979 and July 19-20, 1979 (Report No. 50-219/79-07)
Areas Inspected: Special, unannounced inspection by regional based inspectors of the Radiation Protection Program as a result of written allegations received by the Region I Office (Philadelphia). Areas inspected included Radiation Protection Procedures, Instructions to Personnel, Personnel Exposure Control and Surveys. The inspection involved 64 inspector-hours onsite by three regional based NRC inspectors.
Results: Of the four areas inspected, five items of noncompliance were identified in the following areas: (Infraction - Failure to perform surveys in accordance with 10 CFR 20.201 sufficient to assure compliance with 10 CFR 20.101; Infraction - Failure to perform survey in accordance with 10 CFR 20.201 sufficient to assure compliance with 10 CFR 20.103; Infraction - Failure to instruct workers in accordance with 10 CFR 19.12; Infraction - Failure to adhere to procedures in accordance with Technical Specification 6.11; Infraction - Failure to adhere to procedures in accordance with Technical Specification 6.8).

Region I Form 12
(Rev. April 77)

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DETAILS

1. Persons Contacted

** Mr. D. A. Ross, Manager, Nuclear Generation - Jersey Central Power and Light Company
Mr. J. Carroll, Station Superintendent, Oyster Creek Nuclear Generating Station (OCNGS)
* Mr. J. L. Sullivan, Chief Engineer, OCNGS
* Mr. D. Turner, Radiation Protection Supervisor (Acting), OCNGS
* Mr. L. Smailek, Health Physicist, OCNGS

* denotes those individuals attenting the exit interview.

** exit interview by telephone.

The inspector interviewed several other licensee employees including members of Radiation Protection, Plant Maintenance and Plant Operation staffs.

2. Investigation Scope and Chronology

The purpose of this investigation effort was to review certain allegations that were sent to the USNRC, Region I (Philadelphia) in a letter dated March 26, 1979, from a worker representative at Oyster Creek Nuclear Generating Station.

The letter was in regard to the licensee's performance in the radiation protection area, particularly the radiation protection activities implemented in support of work performed on the Drywell Equipment Drain Tank Line on March 16, 1979.

The following allegations were made:

a. Workers were not sufficiently protected against exposure from contaminated water;

b. Workers were permitted to leave the site with skin contamination in excess of the limits established in the stations procedures;

c. Workers were provided with insufficient radiation protection coverage during decontamination efforts in a work area;

d. Workers who were exposed to radioactive contamination were not adequately evaluated in regard to health and safety aspects of the exposure; and,

e. Maintenance supervision tends to disregard Health Physics practices and the radiological health and safety of workers in its efforts to complete work activities. The Health Physics Department (Radiation Protection) is sometimes ineffective in preventing this type of attitude.

These concerns were expressed in particular to work conducted in accordance with Radiation Work Permit (RWP) No. 619-79.

The following event chronology is provided for information:

Event Chronology

Date	Event
March 26, 1979	A worker's representative at Oyster Creek Nuclear Generating Station (OCNGS) informed the USNRC, Region I (Philadelphia) office of an occurrence in which several workers were contaminated while performing a pipe cut on the Drywell Equipment Drain Tank Line performed on March 16, 1979.
March 28, 1979	Occurrence at Three Mile Island. Region I (Philadelphia) office personnel became committed to investigative and recovery operations at that site.
March 30, 1979	A letter from the worker's representative at OCNGS dated March 26, 1979, was received by USNRC Region I (Philadelphia). The letter documented the individuals specific concerns and requested that an inspection be performed.
April 18, 1979	NRC inspectors arrived onsite to commence investigation of allegations as contained in the letter from the worker's representative dated March 26, 1979.
April 20, 1979	NRC inspectors conducted a preliminary management interview with licensee senior management and presented their findings to date. The inspectors indicated that the investigative effort would be continued upon evaluation of the licensee's proposed corrective actions.
April 23, 1979	Telephone conversation between Mr. Ivan Finfrock, Vice President, Jersey Central Power and Light Company and Mr. James M. Allan, Deputy Director, USNRC, Region I (Philadelphia) to dicuss corrective actions required in the Radiation Protection Program at OCNGS.

Date	Event
April 25, 1979	A letter from Mr. B. H. Grier, Director, USNRC, Region I (Philadelphia) to Mr. Ivan Finfrock was sent which detailed the corrective actions that were required of OCNGS in response to the preliminary findings made by NRC inspectors on April 20, 1979.
July 6, 1979	Meeting in Region I Office with licensee management to discuss improvements in OCNGS radiation protection program.
July 19, 1979	NRC inspectors arrived onsite to resume investigative effort.
July 20, 1979	Final exit interview conducted. NRC inspectors discussed apparent items of noncompliance as a result of the investigation.
September 5, 1979	Meeting in Region I with licensee management to discuss progress in upgrading OCNGS radiation protection program.

3. Event Description

On March 15, 1979, in-leakage was observed in the radwaste pipe tunnel at the rate of 2-4 gpm. Upon investigation by the licensee, it was concluded that a portion of the buried line between Drywell Equipment Drain Tank (DWEDT) in the reactor building and the radwaste tunnel was the source of the leakage. (See Figure 1)

A sample of the leakage was collected from the pipe tunnel and analyzed. The results indicated that gross beta activity was approximately 3.08 E-1 uCi/ml and gross alpha activity was approximately 1.02 E-6 uCi/ml. Gamma analysis was as depicted in Table 1, attached.

Plans were developed to immediately repair the leak but no action was taken until March 16, 1979 at which time it was decided to reroute the DWEDT line to the Reactor Building Equipment Drain Tank (RBEDT) to isolate the presumed leaking section of pipe. (See Figure A, attached)

To this end, a series of planning meetings were held to discuss the job and a special maintenance procedure (79-7) was developed and approved by the Plant Operations Review Committee (PORC). Representatives from the Radiation Protection Department as well as Operations and Maintenance were involved in the job planning for this activity.

Two pipe cuts were necessary to isolate the suspected section of line. The first cut in the radwaste pipe tunnel was to be made for the purpose of draining the line, a fact that was not comprehended by the representatives of the Radiation Protection Department throughout the job planning. The second cut was to be made on the 23 foot elevation of the Reactor Building, for the purpose of providing a tie-in for the temporary line to be routed to the RBEDT.

When the time came for the pipe cuts to be made, on March 16, 1979, the licensee found it necessary to call in two mechanics who had not been associated with any of the activities (planning, job briefing, preparations, etc.) associated with this job, to perform the cuts in the radwaste pipe tunnel (a high radiation and high contamination area).

The mechanics were not provided with any job description, briefing or procedure or instructed in the radiological hazards that were associated with the work.

The mechanics working in accordance with an RWP No. 062279, "Cut DWEDT Discharge Line and Cap-SW Corner of Rx Building In Pipe Tun" which did not specify any requirements to be used to protect personnel from contamination due to radioactive water, entered the pipe tunnel and made the cut under the direction of their supervisor who was also in the area.

When the pipe was severed, radioactive water (under pressure) sprayed from the penetration in sufficient quantity to throughly wet all personnel in the area. Since the mechanics were not aware that the water was radioactive, they continued working the job to completion in the pipe tunnel.

The second cut on the 23 foot elevation of the Reactor Building also resulted in the personnel becoming slightly contaminated due to unexpected quantities of water being released when the line was penetrated. In this case also, the RWP provided for the job (RWP No. 061979 "Run Temp Pipe Line, DWEDT Line-Hub Drain in CSHX Area") did not specify adequate requirements to protect against radioactive contamination.

When the workers from the pipe tunnel area exited the area, the radioactivity on these persons was sufficient to cause the personnel frisker to alarm. Surveys performed by a radiation protection technician indicated that the personnel were contaminated as high as 60 mrad per hour (uncorrected for beta activity) when measured with an E-530 GM survey meter and HP-177 probe (window open), near contact.

Decontamination measures were taken and the personnel were released without any restrictions, even though the OCNGS decontamination limits had not been met, i.e., station procedure 905.10.3, "Personnel Contamination - No Injury" specifies 0.05 mr/hr but at least one of the individuals released had still measured 2.0 mr/hr.

The personnel who were involved in this contamination incident were not evaluated as to their personnel exposures nor was the event ever investigated by the licensee's management until requested to do so by the NRC inspectors who were reviewing the event on April 20, 1979.

4. Procedures

The inspector reviewed the event against the following Technical Specifications:

Technical Specification 6.8, "Procedures"

Technical Specification 6.11, "Radiation Protection Program"

a. Technical Specification 6.8.1 states, "Written procedures shall be established, implemented [adhered to], and maintained that meet or exceed the requirements of Section 5.1 and 5.3 of American National Standard N18.7-1972 and Appendix 'A' of the Nuclear Regulatory Commission's Regulatory Guide 1.33-1972". Regulatory Guide 1.33, Appendix "A" specifies written procedures for performing maintenance activities.

Procedure Number 79-7, Revision 0, "Repair of DWEDT Discharge Line", written in accordance with Technical Specification 6.8, was PORC reviewed and issued on March 16, 1979.

The purposes of the procedure was to provide detailed instructions for the repair of the DWEDT Discharge Line. The following was specified:

> "Prerequisites: ... 3.5 Ensure the discharge line is appropriately isolated, drained and tagged prior to cutting into it...
>
> Instructions: ...5.1.4 Ensure the section of the discharge line to be cut into is isolated, drained and tagged. Contact the Group Shift Supervisor for notification."

According to the licensee's representatives, the PORC and the Radiation Protection Department understood from such statements that the line would be isolated and drained prior to any cutting and that "a little residual" water may be released when the pipe was penetrated, i.e., less than 2 gallons of water.

Contrary to this understanding, the Supervisor - Station Mechanical Maintenance indicated to the inspector that the line could not be isolated by valving; the drawings available did not depict any points where draining could be accomplished, and it was expected that the lines were full of water and probably under a pressure due to the volume head upstream of the pipe cut location. This Supervisor further stated that it should have been apparent to all personnel concerned that the purpose of the first pipe cut in the pipe tunnel was to provide the drain point for the DWEDT line and that the line would not be drained until after that cut was made.

The inspector learned that the mechanics performing the pipe cuts as well as the Radiation Protection Technicians providing coverage were under the impression that the line was drained as specified in the procedure. However, when the first penetration was made, water under at least 22 psi pressure was released through the cut, spraying all of the individuals in the area, resulting in their contamination.

The inspector identified that Procedure 79-7 was not adhered to in that the specified action to drain the DWEDT discharge line had not been accomplished prior to the pipe cuts being made and had therefore, resulted in the skin contamination of at least three individuals.

The licensee's investigation of this event revealed that there was, in fact, a drain plug in the line that could have been used to effectively drain the line prior to cutting. The drain plug was not depicted on any of the plant's drawings but was found when the line was later traced.

The inspector also noted that though the pipe cut in the pipe tunnel was performed on the onset of work (in order to provide a drain point) it was in fact the last direction in the instruction sequence, i.e., the pipe cut in the 23 foot elevation of the reactor building was sequenced to be performed first, a further indication that the line was presumed to have been drained.

The inspector identified that failure to implement (adhere to) Procedure 79-7 constituted noncompliance with the requirements of Technical Specification 6.8. (50-219/79-07-01)

b. Technical Specification 6.11 states, "Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure".

The inspector noted the following examples of the licensee's failure to adhere to the following radiation protection procedures in regard to activities conducted in accordance with RWP 062079, "Cut DWEDT Discharge Line and Cap" on March 16, 1979:

(1) Procedure 901.6, Revision 1, "Considerations in Air Sampling for Respiratory Protection". The procedure states the following:

"5.4 Areas suspected or identified as being radioactive airborne areas shall be monitored as required to:

5.4.1 Provide an estimate of the potential intake of airborne radioactive materials and resulting exposure of the individual worker.

5.4.2 Provide data to assist in the selection of respirator protective equipment that would provide adequate protection under exposure conditions.

5.4.3 Provide data for control of long term exposure to workers.

5.4.4 Provide documentation of personnel exposures for legal or regulatory purposes.

5.4.5 Identify and characterize the contaminants and their sources.

5.4.6 Provide data for determining the requirements for engineering on administrative controls.

5.4.7 Indicate the continuing effectiveness of existing controls, and warn of the deterioration of control equipment on operating procedures.

5.4.8 Provide a record of long term trends showing variations in contaminant levels.

5.4.9 Continuously measure the level of airborne contaminants in and about work areas and warn of releases of airborne contaminants to the outside environment.

Contrary to this procedure, no air samples were taken on which to base an estimate of personnel exposure to three individuals who were performing work in accordance with RWP 062279.

(2) Procedure 903.5, Revision 14, "Bioassay Samples and Whole Body Counting". The procedure states the following:

"5.1 The sample type, quantity and frequency will be determined by the Supervisor, Radiation Protection for an individual who is known to have or is suspected of having an intake of radioactive material into the body".

Contrary to this procedure, the Supervisor, Radiation Protection did not specify and consequently did not cause to be made any type of bioassay to evaluate the significance of the suspected intake of radioactive materials by the three individuals working in accordance with RWP 062279.

(3) Procedure 903.9, Revision 0, "Daily Exposure and Access Control Card". The procedure states the following:

"5.12 At the end of the individual's work day, return the completed card to Health Physics collection container for subsequent processing.

NOTE: Each entry and egress of an RWP area requires the individual to record on the card, the data as required by this procedure.

NOTE: The time and exposure not covered by specific entries of an RWP, should be recorded as a single entry on the card of "NON RWP" as described by this procedure.

NOTE: Each entry into a locked high radiation area is to be recorded on the card. The dosimeter readings are to be read immediately before entering and immediately upon exit."

Contrary to this procedure, the personnel involved in the work permitted by RWP 062279 did not complete the Daily Exposure and Access Control Card in accordance with the requirements. There was no exposure information identified for any of the individuals even though the access was controlled by an RWP. As a result, the Oyster Creek Radiation Work Permit Detail List dated July 19, 1979 does not indicate any personnel exposure attributable to RWP 062279, even though actual personnel exposure ranged between 100 and 300 millirem per person.

(4) Procedure 902.1, Revision 14, "Radioactive Work Permits". The procedure states the following:

3.1 Surveys must be performed prior to the issuance of the RWP.

4.1 Working personnel should be briefed regarding the work to be performed and the radiological safety procedures applicable to the job.

4.2 All applicable radiological limits and precautions shall be held in strict compliance by all personnel.

5.3 Radiation Protection Personnel shall:

5.3.1 Evaluate the radiological condition of the intended work area and inform the working personnel of the conditions found either verbally or by providing copies of surveys.

Contrary to this procedure, the personnel assigned to perform the activity permitted by RWP 062279 were not briefed concerning the radiological aspects of the work (i.e., the pipe contained radioactive effluent; high levels of radioactive contamination could be encountered creating the potential for airborne radioactivity; the radiation levels in the area of the work site.) In addition, the surveys used to support the work were performed on March 1, 1979, fifteen days earlier. The radiation dose rate noted on the RWP indicated 1 mrem/hr. Actual dose rate was approximately 200 mrem/hr.

(5) Procedure 905.10, Revision 4, "Personnel Contamination - No Injury". The procedure states the following:

"3.2 The level of fixed contamination shall be less than 0.05 mr/hr beta gamma above background for the individual to be released without any restrictions.

3.3 If the limits of ... 3.2 cannot be met, other limits may be specified by the Supervisor, Radiation Protection.

5.2.2 Document actions taken and results obtained.

5.2.3 If the limits of ... 3.2 are not met, notify the Group Radiation Protection Supervisor and the Supervisor, Radiation Protection.

5.4 Supervisor, Radiation Protection shall:

5.4.1 Evaluate extent of contamination condition and specify other limits if necessary and applicable.

5.4.2 Evaluate data for subsequent reporting in personnel records".

Contrary to this procedure, one of the individuals who was contaminated while performing work as permitted by RWP 062279 was released without any restrictions after he was decontaminated to 2.0 mrem per hour. The Supervisor, Radiation Protection was not notified; and no other followup was specified. In addition, no exposure evaluation was performed for any of the personnel; consequently the exposure they received due to skin contamination was not included in their personnel records.

(6) Procedure 905.2, Revision 4, "Class II Emergency". The procedure states the following:

3.1 Protective action levels.

3.1.1 Any personnel contamination in excess of the limits specified for the radioisotope involved.

3.1.4 Any radioactive spills unplanned or uncontrolled involving small quantities of radioactivity (less than 2 millicuries).

5.1 The Group Shift Supervisor shall:

5.1.1 Assume interim role of Emergency Duty Officer.

5.1.2 Evaluate the emergency conditions.

5.1.3 Notify the Emergency Duty Officer or his alternate.

5.1.4 Notify Radiation Protection personnel.

5.1.5 Notify the fire brigade if necessary.

5.1.6 Notify the safety representative as necessary.

5.1.7 Direct all personnel involved to initiate protective measures.

5.1.8 Notify, if necessary the Lacey Township Fire Department and dispatch individual to await their arrival and provide direction and escort.

5.1.9 Arrange for medical assistance, as required.

5.2 The Emergency Duty Officer shall:

5.2.1 Consult with Group Shift Supervisor.

5.2.2 Assess the radiological consequences of the emergency.

5.2.3 Consult with the Station Superintendent and make recommendations regarding the necessity for outside agency involvement and their notification.

5.2.4 Assume coordination of the emergency activities.

Contrary to this procedure, though the radioactive spill and subsequent personnel contamination incident (associated with the work permitted by RWP 062279) constituted a Class II Emergency, it was not recognized as such, and consequently the specified actions were not performed.

The inspector identified that failure to adhere to the requirements specified in the previously mentioned procedures constitutes an item of noncompliance. (50-219/79-07-02).

5. Instructions to Workers

10 CFR 19.12, "Instructions to Workers", states, "All individuals working in or frequenting any portion of a restricted area shall be kept informed of the storage, transfer, or use of radioactive materials or of radiation in such portions of the restricted area; shall be instructed in the health protection problems associated with exposure to such radioactive materials or radiation, in precautions or procedures to minimize exposure, and in the purposes and functions of protective devices employed. The extent of these instructions shall be commensurate with potential radiological health protection problems in the restricted area."

In addition, Health Physics Procedure 902.1, Revision 14, Radioactive Work Permits, states in Precaution 4.1, "Working personnel should be briefed on the work to be performed and the radiological safety procedures applicable to the job."

From interviews with the two mechanics who were directed to perform the pipe cut (See Figure A. Cut No. 1), the inspector learned that the individuals were told only to perform the cut by their management. Information pertaining to the radiological hazards involved in the operation (i.e., the pipe they were to cut was full of radioactive water under pressure and the radiological status of the work site) was not conveyed to them. For example, the latest survey data utilized for RWP 062279 was fifteen days old and did not represent the actual radiation and contamination levels in the area. The RWP indicated a radiation level of 1.0 mrem/hr while actual radiation levels were as high as 200 mrem/hr in the work area. (See Detail 6)

It was also learned that the personnel were not aware of the procedure written for this work, 79-7, "Repair of DWEDT Discharge Line"; and the specified prerequisites for the cut.

As a result of this lack of information, the personnel were unaware that the water that was sprayed upon them during the cutting operation was radioactive and therefore, did not take immediate action to prevent further exposure to themselves on the onset of the spill, but rather continued to work on the pipe cut to completion (which involved a second cut and installing pipe caps on the pipe openings).

According to the mechanics involved, they were not aware of the radioactive nature of the water until the radiation monitoring devices in the change room alarmed due to the radioactive contamination on their persons.

Surveys by a radiation protection technician indicated a dose rate a high as 60 mrad/hr as measured with a E-530. A followup evaluation revealed that the 60 mrad/hr reading with the E-530 was equivalent to a surface dose rate of 224 mrad/hr, beta; and 16 mr/hr, gamma.

According to the licensee's assessment, the estimated radiation dose to the skin received by the three personnel (2 mechanics and 1 supervisor) was as follows:

Individual A	=	1007 mrad, beta
		69 mrem, gamma
		1076 mrem (Dose Equivalent)
Individual B	=	214 mrad, beta
		16 mrem, gamma
		230 mrem (Dose Equivalent)
Individual C	=	196 mrad, beta
		14 mrem, gamma
		210 mrem (Dose Equivalent)

The inspector indicated that failure to instruct personnel commensurate with the degree of radiological hazard expected in the performance of their assigned work activity constituted noncompliance with 10 CFR 19.12, "Instructions to Workers". (50-219/79-07-03)

In regards to the licensee's estimate of exposure, the inspector indicated that methodology and calculations would be reviewed to determine if the technique provides the best estimate of the exposure the personnel received. (50-219/79-07-07)

6. Surveys

The inspector reviewed this event against the requirements of 10 CFR 20.201, "Surveys", which states, "Each licensee shall make or cause to be made such surveys as may be necessary to comply with the regulations in this part."

a. 10 CFR 20.103, "Exposures of individuals to concentrations of radioactive materials in air in restricted areas" states in paragraph (a)(3) "For purposes of determining compliance with the requirements of this section the licensee shall use suitable measurements of concentrations of radioactive materials in air for detecting and evaluating airborne radioactivity in restricted areas and in addition, as appropriate, shall use measurements of radioactivity in the body, measurements of radioactivity excreted from the body, or any combination of such measurements as may be necessary for timely detection and assessment of individual intakes of radioactivity by exposed individuals".

Examination of the survey information associated with work performed in accordance with RWP 0619-79, "Run Temp Pipe Line, DWEDT Line-Hub Drain in CSHX Area", and RWP 062279, "Cut DWEDT Discharge Line and Cap-SW Corner of Rx Building in Pipe Tun", revealed that there were no air samples taken of the air to which personnel were exposed and therefore, the licensee could not evaluate the activity in air to which personnel were subjected.

From interviews with the involved personnel and review of the RWP's associated with the operation, it was determined that the respiratory protection devices were worn while working in the area and had probably afforded some protection.

On April 20, 1979, the individuals who were contaminated with radioactive water were subjected to Whole Body Counting by the licensee's contractor, Radiation Management Corporation (RMC).

The following results were determined:

Individual A 23% of IL*.

Individual B 17% of IL*.

Individual C 78% of IL*.

*The Investigation Level is defined as the body burden resulting from a single intake, which will result in a dose commitment equal to 1/20th of the annual permissible dose to the organ of interest. For all investigation levels, except for soluble I-131 which concentrates in the thyroid, the nuclides are assumed to be in an isoluble form and deposited in the lung. The %IL as calculated by RMC assumes that the time between uptake and whole body analysis was sufficient to allow all rapid clearance mechanisms to remove from the body all but 12.5% of the initial intake as described in the ICRP 10 lung model.

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*Investigation Limit

The licensee analyzed the whole body count data using the following assumptions:

(1) All measured activity was in the single organ which resulted in the largest dose commitment to the whole body.

(2) The activities were corrected for decay from March 16, 1979.

(3) All activity resulted from the stated incident.

Accordingly, the following dose commitments were calculated:

Individual A 4.3 mrad

Individual B 3.5 mrad

Individual C 13.0 mrad

The inspector indicated that failure to perform surveys in accordance with 10 CFR 20.201 sufficient to comply with the requirements of 10 CFR 20.103 constitutes an item of noncompliance. (50-219/79-07-04)

The licensee representative indicated that an evaluation would be performed to determine if any individual had exceeded the 40 hour control measure as specified in 10 CFR 20.103(b)(2). The inspector indicated that this item would be reviewed in a subsequent inspection. (50-219/79-07-05)

b. 10 CFR 20.101, Radiation dose standards for individuals in restricted areas states the limits for personnel exposure to sources of radiation. In order to assure that personnel exposures are controlled to within the regulatory limits, it is necessary to perform surveys in accordance within 10 CFR 20.201.

As discussed in Detail 5 of this report, RWP 062279, "Cut DWEDT Discharge Line and Cap-SW Corner of Rx Building in Pipe Tun", was issued for work on March 16, 1979. The latest surveys of this work area (Pipe Tunnel between the Reactor Building and Radwaste Building) were performed on March 1, 1979 (Survey No. 419-79, Radiation Survey, and Survey No. 445-79, Contamination Survey).

As mentioned in Detail 3, radioactive water was detected leaking in to this area on March 15, 1979 (an indication that radiological conditions may have changed in the area since the performance of the March 1, 1979 survey.

The inspector noted that the work performed on March 16, 1979 in accordance with RWP 062279, "Cut DWEDT Discharge Line and Cap-SW Corner of Rx Building", was done based on the following surveys dated March 1, 1979:

Survey No.	Type
419-79	Radiation
445-79	Contamination

As recorded on the RWP, radiation and contamination levels were given as 1.0 mrem/hr and 2405 dpm/100 cm^2, respectively. The inspector's review of these surveys indicated that these values were measured on the floor in the vicinity of the proposed pipe cut and not in the overhead where the work was to be performed.

Actual radiation levels measured in the overhead indicated radiation levels as high as 200 mrem/hr existed at the time personnel were performing the pipe cut. Contamination surveys taken on March 22, 1979 indicated that contamination levels in the overhead may have been as high as 50,000 dpm/100 cm^2.

The inspector indicated that failure to perform surveys to determine the actual radiological conditions to which personnel would be exposed sufficient to comply with the regulatory requirement of 10 CFR 20.101 constitutes an item of noncompliance. (50-219/79-07-06)

7. Exit Interview

The inspector met with licensee representatives (as denoted in Detail 1) at the conclusion of this inspection on July 20, 1979, and summarized the purpose, scope and findings of the inspection. Additionally, the licensee's corrective actions as indicated in a letter to Mr. I. Finfrock, Jr., Vice President, Jersey Central Power and Light Company from Mr. B. H. Grier, Director, USNRC, Region I, dated April 25, 1979 were reviewed.

Figure A

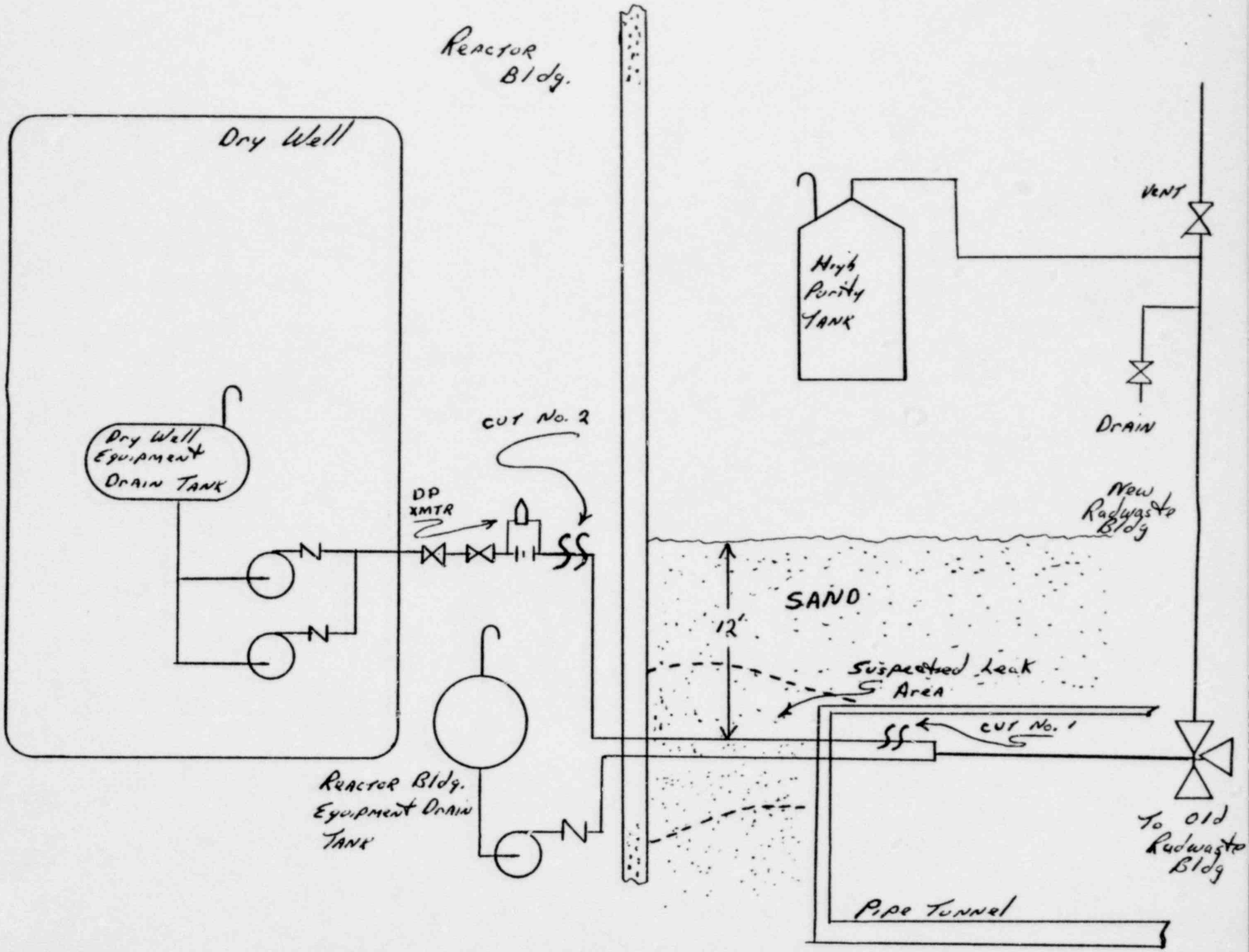
Reactor Bldg.
Dry Well
Dry Well Equipment Drain Tank
DP XMTR
CUT No. 2
High Purity Tank
VENT
DRAIN
New Radwaste Bldg
SAND
12'
Suspected Leak Area
CUT No. 1
Reactor Bldg. Equipment Drain Tank
To Old Radwaste Bldg
Pipe Tunnel

TABLE I

Gamma Analysis of Leak from Pipe Tunnel on
March 15, 1979

Predominant Isotopes

Isotope	uCi/ml
I-131	5.3 E-3
I-132	6.17 E-2
I-133	6.68 E-2
I-134	2.08 E-1
Mn-54	6.23 E-3
Kr-87	3.29 E-2
Xe-133m	2.60 E-2
Xe-135	1.1 E-2
Tc-99m	3.83 E-2
Ba-140	2.59 E-2
Ce-144	2.64 E-2
Np-239	1.51 E-2
Co-60	1.31 E-3 (Major Peak Missing)
Cs-137	Not Identified
Co-58	3.98 E-3
Cs-134	1.38 E-2 (Major Peak Missing)
Fe-59	5.24 E-3 (Major Peak Missing)