UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

IE Investigation Report No. 50-315/77-14
IE Investigation Report No. 50-255/77-12
IE Investigation Report No. 50-155/77-13

Subjects: American Electric Power Service Corporation
Indiana and Michigan Power Company
2 Broadway
New York, NY 10004

Donald C. Cook Nuclear Plant, Unit 1
License No. DPR-58

Consumers Power Company
1945 West Parnall Road
Jackson, MI 49201

Palisades Nuclear Generating Plant
License No. DPR-20

Big Rock Point Nuclear Plant
License No. DPR-6

Allegations - an individual alleged various deficiencies in quality control, design, and radiation protection.

Date of Interview with Alleger: March 31, 1977

Investigator: J. E. Foster — J. E. Foster — 9/22/77 (Date)

Accompanying Inspector: KRBaker — K. R. Baker — 9/21/77 (Date)

Reviewed By: W. L. Fisher — W. L. Fisher, Chief, Fuel Facility Projects and Radiation Support Section — 9/16/77 (Date)

RF Warnick — R. F. Warnick, Chief, Reactor Projects Section 2 — 9/16/77 (Date)

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REASON FOR INVESTIGATION

Following the receipt of a letter which alleged deficiencies in the construction of the D. C. Cook Nuclear Power Plant, and in the design and radiation protection at the Palisades Nuclear Power Plant, RIII initiated an investigation into the allegations.

SUMMARY OF FACTS

Individual "A", in a handwritten letter sent to Individual "B" on February 24, 1977, stated that he had personal knowledge of various deficiencies at the D. C. Cook (Unit 1) and Palisades nuclear power plants. On March 21, 1977, Individual "B" forwarded this letter to RIII with the request that the allegations made by Individual "A" be investigated by the NRC.

In the letter (See Exhibits I and II), Individual "A" made the following allegations: (1) that welds on the cooling loop of containment #1 at the D. C. Cook plant were improper, (2) that he had advised the Indiana and Michigan Power Company that the welds were improper, and that they had concealed the deficiencies, (3) that the fuel loading tanks (fuel pool) at the Palisades plant were inadequate in design, (4) that the steam generators at the Palisades plant were improperly constructed, (5) that an individual had died due to radiation exposure from radiography of welds, and (6) that he may have been overexposed to radiation at the Palisades plant.

Individual "A" was contacted by telephone on March 29, 1977, and was interviewed on March 31, 1977. During the interview it was found that Individual "A" lacked first-hand knowledge or technical understanding of several of the matters included in his letter to Individual "B." Each allegation was discussed with Individual "A," and technical details were explained for several matters. Following the interview and discussion with Individual "A," three allegations from his letter were understood to exist, and one additional allegation had been developed during the discussions. The allegations were as follows:

(1) Welds on the reactor to steam generator loop at the Cook Unit 1 plant were improper.

(2) An individual died from leukemia caused by radiation exposure from radiography.

(3) Individual "A" might have been overexposed to radiation at the Palisades plant.

(4) Workers at the Palisades plant traded film badges during a repair outage.

None of the four allegations were substantiated by the information developed during the investigation. However, definitive information which would show that a specific allegation was invalid could not be developed in each case. This was due or partially due to the time span since the alleged item, the unavailability of other possible witnesses, and/or the lack of specificity of the particular allegation.

No items of noncompliance with NRC regulations were observed during the course of this investigation.

DETAILS

Personnel Contacted

Consumers Power Company

J. Mills, Radiation Protection Supervisor
V. Schockley, Health Physicist
C. Axtel, Plant Health Physicist (Big Rock Point)
T. Brun, Chemical & Radiation Protection Supervisor

Individuals

Individuals "A" through "H"

Scope

This investigation focused on the specific allegations made by Individual "A," as understood after the discussion of the allegations with Individual "A."

Interview with Individual "A"

Individual "A" was interviewed by two representatives of RIII on March 31, 1977. He stated that he had worked for the Bechtel Company at the Palisades nuclear plant at various times during the period 1969-1973, and for the Livsey Company at the D. C. Cook (Unit 1) nuclear plant at various times during the period 1973-1974 (no specific dates). He indicated that he had been employed as a pipefitter-welder, and was qualified to weld copper pipe.

Each of the allegations contained in Individual "A"'s letter were discussed at length with Individual "A."

Individual "A" indicated that he had been assigned to work on the final nuclear cleanup of piping and welds at the D. C. Cook Unit 1 plant. This cleanup, intended to remove foreign matter which could become a hazard during plant operation, was done with acetone and rags. Individual "A" stated that the surface of the welds that he cleaned was rough feeling to the hand, and that sometimes the lint from his cleaning rag would get caught on the welds. He said he knew that the welds were improper because the welds which he had cleaned at the Palisades plant had not been as rough. Individual "A" stated that such rough welds would not have been accepted at the Palisades plant.

Individual "A" stated that he had questioned a utility representative about the roughness of the welds, and the utility representative had promised to get back to him with an answer. The man did return, Individual "A" said, and told him that all of the welds had been examined, radiographed, and approved. Individual "A" indicated that he had not meant to say that the matter had been "covered up," but he felt that the welds were too rough to have been properly done.

The operation of the fuel pool at the Palisades plant was discussed with Individual "A," revealing several technical misunderstandings of the operation of the fuel pool. Individual "A" was under the impression that the fuel pool could not operate as a spent fuel pool and be used to load new fuel into the reactor at the same time. The operation of the fuel pool was explained and diagrammed, and Individual "A" indicated that he had no further concerns related to the fuel pool's operation.

Discussion with Individual "A" indicated that he was not familiar with the design or operation of the steam generators used in the Palisades plant. A diagram of a typical steam generator tube was discussed with Individual "A," and the various problems which had occurred concerning the steam generator tubes at the Palisades plant were explained. The RIII representatives advised Individual "A" that the steam generator tubes for the Palisades plant were made in Chatanooga, Tennessee.

Individual "A" indicated that he was not personally involved in the steam generator tube plugging operation at the Palisades plant, but that the men involved had told him about it. When advised that the NRC was aware of the steam generator tube problems, and that cracked welds had not been indicated as a problem, Individual "A" stated that the cracked welds were probably just a rumor. He stated that he had no further concerns in this area.

Individual "A" stated that he had not worked in a radioactive area for six months after having received his radiation limit, as suggested by his letter. He indicated that he had intended to convey the fact that there had been six months between the times that he had worked at the Palisades plant.

Individual "A" stated that he had gotten contaminated with radioactive material when he inadvertently cut a line in the Palisades plant laundry room (date unknown). He indicated that he had left the area immediately, washed, changed clothes, and was checked by Individual "H." It was pointed out to Individual "A" that what was done was proper procedure for any contamination incident, and that no noncompliance with NRC regulations was evident from what he had said. Individual "A" indicated that this was understood.

Individual "A" stated that when the job which involved the incident above had finished, and he was laid off, he received a letter from the utility which indicated his radiation exposure for the period of his employment. He stated that he had received no other notification of his radiation exposure, and that he had not requested radiation exposure data from the utility.

Individual "A" stated that sometime during 1975 or 1976, a union organizer had told him that Individual "C" had died from leukemia. Individual "A" said that Individual "C" had probably been overexposed to radiation from radiography conducted on the various projects that Individual "C" had worked on.

Individual "A" indicated that he might have been exposed to radiation in 1969, in late June or early July of that year. He stated that one evening he and several others were working on the cold leg of the reactor (described as being between the pump and the generator). When the men took a break from work, at sometime between 11:30 - 12:00 p.m., they discovered that they were on the wrong side of a radiography exclusion rope strung across the reactor containment door. Individual "A" indicated that radiography was being done on the opposite side of the reactor, where 360 degree radiographs of pipe welds were being made. He stated that neither himself nor the other men with him had film badges or dosimeters.

Individual "A" stated that some of the workmen who worked at the Palisades plant during the steam generator plugging operation would switch or steal film badges from workers who did not work in radioactive areas. This was done, he said, so that the workers would be allowed to work on the tube plugging for a longer period of time, and therefore make more money.

Findings

1. Allegation

Welds on the reactor to steam generator loop at the Cook Unit 1 plant are improper; the welds are rough to the touch, and when cleaned, lint from the cleaning rags caught in the welds.

Finding

The type of piping used at the D. C. Cook Unit 1 plant differs from the type of piping used at the Palisades plant, and different welding procedures were used for each type of piping. The different welding procedures may account for the difference in the final surface of the weld.

Through discussion with D. C. Cook plant personnel, it was found that there had been some problems with lint and small pieces of cleaning rag sticking to the welded surfaces during the final nuclear cleanup. To alleviate the problem, a different type of cleaning rag was used which did not have this problem. Interviews with several licensee personnel also involved in the Cook 1 nuclear cleanup indicated that they had not observed any problems related to welds mentioned by Individual "A."

The welds in question, on the inside of a reactor cooling loop, are not accessible at the present time. However, these welds have been checked during the in-service inspections of the plant, using ultrasonic examination techniques, and have been found to be acceptable.

Individual "A," during the interview with RIII personnel, indicated that he was told that the welds had been radiographed and accepted, and that the welds had been polished. Radiography is the final acceptance test of a weld done on a reactor primary coolant boundry, and the weld is polished to facilitate the in-service inspections to be done in later years.

There may exist a certain amount of surface defects (determined by the applicable code), and the weld can still be acceptable and strong.

2. Allegation

An individual died from leukemia caused by radiation exposure from radiography.

Finding

It was found that Individual "C" had died from myeloblastic leukemia on January 3, 1975, as substantiated by a certificate of death filed with the appropriate department of health.

Individual "D," Individual "C"'s widow, contacted on June 14, 1977, indicated that Individual "C" had contracted leukemia due to a radiation overexposure which took place at the Big Rock Point nuclear plant in late 1969 or early 1970. She stated that Big Rock Point was the only plant which had operated (and was radioactive) that her husband had worked in. It was indicated that another individual, Individual "E," was with her husband when he was overexposed, and was likewise overexposed to radiation.

Individual "E" was contacted on August 24, 1977, and he stated that he did not recall any such incident. He stated that he had been given a tour of the areas to be worked at the Big Rock Point Plant during the repair outage, but that he and the others with him had been closely monitored by utility personnel, and they had not been over-exposed to radiation.

Individual "F," the attending doctor for Individual "C," was contacted on August 26, 1977, and the case discussed. Individual "F" stated that there were no notes as to radiation exposure in Individual C"'s medical file, and that Individual "C" had not mentioned any such radiation exposure to him. Individual "F" stated that myeloblastic leukemia can be caused by many factors besides radiation.

The radiation exposure history for work at the Big Rock Point and Palisades plants was obtained. During monitored periods from August, 1966 to August, 1971, Individual "C" had a total recorded exposure of 330 millirem, far below regulatory limits.

On September 2, 1977, Individual "G," who had been in charge of the Bechtel work at the Big Rock Point plant, was contacted. He indicated that he had no knowledge of Individual "C" having been exposed to radiation, and that Individual "C"'s position at the Big Rock Point job site was not one where he would have been exposed to radiation. Individual "G" stated that Individual "C" did not visit the Big Rock Point plant often, and would be present at the plant for a day or two at a time during a visit.

3. Allegation

Individual "A" stated that he might have been overexposed to radiation at the Palisades plant.

Finding

Individual "A" indicated that in 1969, in late June or early July, he and several other men who were working on the cold leg of the reactor found that they were inside of a radiography exclusion rope.

An inspection of licensee records indicated that monitoring of personnel for exposure to radiation commenced on a limited basis during July 1969. Prior to that time, personal monitoring equipment was not provided by Palisades.

Individual 'A"'s radiation exposure records at the Palisades plant indicated that he was monitored during the second quarter of 1972, and the first, second, and third quarters of 1973. The only exposures to radiation were indicated as June, 1973, 125 millirems, and July, 1973, 75 millirems of radiation dose.

The licensee's health physics log was reviewed for the period including June and July, 1969, in an attempt to determine if any radiography was being performed during that period, and if any incidents such as described by Individual "A" were recorded. The log did not indicate that radiographers were on the site during June or July, 1969, but log entries were extremely sparse.

The records reviewed did not provide sufficient information to substantiate or to disprove Individual "A"'s allegation. Assuming that the incident did occur as stated by Individual "A," (1) it is not certain that radiography was being performed while the individuals were in the area, since the presence of a radiography exclusion rope does not indicate that radiography was actually being performed while the men were working on the cold leg of the reactor, (2) the area indicated by Individual "A" as the area he was working in would provide more than enough shielding from the type of radiography described if performed in the location described (A major portion of the reactor, its containment, and concrete flooring separate the two areas.), and (3) the radiographer, not the Palisades plant, would be responsible for evaluating the incident, and assessing any possible radiation exposure to personnel.

Title 10, Code of Federal Regulations, Part 34, indicates the requirements for radiographers, and specifies the records that they must keep. Records for source utilization, radiographic exposure device, the identity of the radiographer, and the plant or site where the source was utilized are required to be kept for two years. Likewise, records of radiation surveys made during radiographic operations must be kept for two years. At this date, a reconstruction of the alleged incident would be difficult or impossible due to the lack of these records, even if a specific date for the alleged incident could be ascertained.

A review of the licensee's health physics log did not substantiate Individual "A"'s statements concerning a laundry contamination incident. Individual "H" was queried concerning the alleged incident, but could not recall any such incident. As Individual "A"'s highest dosimeter reading for a single day was 57 millirems, and assuming the incident occurred as described by Individual "A," the licensee's response appears appropriate for a contamination incident.

The licensee apparently furnished Individual "A" and the NRC with a report of Individual "A"'s exposure to radiation incurred during his work assignment at Palisades. Such a report is required by 10 CFR 20.409. Telephone confirmation was received from the Office of Management Information and Program Control (NRC) that a termination report had been received for Individual "A." The reported exposure information was in agreement with the licensee's exposure records. The dates that the exposure information was furnished to Individual "A" and the NRC could not be verified. It is possible that the exposure information was not submitted within the time frame specified in 10 CFR 19.13 and 10 CFR 20.409, since the licensee was cited in IE Inspection Report No. 050-255/75-06 (April 22, 1975) for not furnishing these reports on a timely basis.

4. Allegation

Individual "A" stated that workmen at the Palisades plant involved in the steam generator plugging operation would sometimes switch or steal film badges from workers who did not work in radioactive areas, so that they would be allowed to work on the tube plugging for longer periods.

Findings

The licensee's personal exposure records were reviewed with licensee personnel for the plant outages during 1973 and 1974 in an attempt to determine if personal monitoring devices had been switched as alleged. It was assumed that if such switching actually did occur, some individuals who would have been expected to receive relatively low exposures would have relatively high exposures recorded in the licensee's personal monitoring records. No significant anomalous exposures were identified in the licensee's records. It should be noted that the licensee's routine review of the results of personal monitoring should identify unusual exposures.

Individual "A" indicated that he could not identify any particular individual who switched badges as alleged.

None of the information obtained substantiated the film badge switching as alleged.

Attachments:
Exhibits I and II