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

REGION I

Report No. 50-333/81-05

Docket No. 50-333

License No. DPR-59 Priority -- Category C

Licensee: Power Authority of the State of New York (PASNY)

P. O. Box 41

Lycoming, New York 13093

Facility Name: James A. FitzPatrick Nuclear Power Plant (JAF)

Inspection At: Scriba, New York

Inspection Conducted: February 9-13, 24-27, 1981

Inspectors: Todd J. Jackson 6-22-81
T. J. Jackson, Radiation Specialist date

date

date

Approved by: Robert J. Bores 6-29-81
R. J. Bores, Chief, Independent Measurements date
& Environmental Protection Section, EP&PS Branch

Inspection Summary:
Inspection on February 9-13, 24-27, 1981 (Report No. 50-333/81-05)
Areas Inspected: Routine, unannounced inspection of environmental monitoring programs for operations, including: management controls for these programs; the licensee's program for quality control of analytical measurements; implementation of the environmental monitoring programs - radiological; implementation of the environmental monitoring programs - biological/ecological; nonradioactive effluent release rates and limits; and followup on licensee action on previous environmental inspection findings. The inspection involved 34 direct inspection-hours by one regionally based NRC inspector.
Results: Of the six areas inspected, no items of noncompliance were found in four areas. Two items of noncompliance (Failure to conduct all audits at required frequency - Detail 3.b; Inadequate environmental airborne iodine sampling - Detail 5.a) were identified in two areas.

DETAILS

1. Individuals Contacted

Power Authority of the State of New York (PASNY)

*R. Pasternak, Resident Manager
*V. Childs, Assistant to the Resident Manager
*R. Baker, Superintendent of Power
*R. Burns, Assistant to the Superintendent of Power
*M. Cosgrove, Site QA Engineer
*D. Tall, Training Coordinator
*R. Converse, Operations Superintendent
*B. Gorman, Environmental Supervisor
*A. McKeen, Assistant to Radiological and Environmental Services (RES) Superintendent
K. Szeluga, RES "B" Technician
R. Liseno, Shift Supervisor
D. Johnson, Control Room Shift Operator
H. Keith, I&C Supervisor

Niagara Mohawk Power Corporation (NMPC)

M. Silliman, Acting General Superintendent
T. Roman, Station Superintendent
E. Leach, Superintendent Chemical/Radiation Management
H. Flanagan, Environmental Protection Coordinator
B. Taylor, Site I&C Supervisor
R. Coon, Unit I&C Supervisor
D. Palmer, Supervisor, QC Operations
G. Leskiw, Assistant Supervisor, QC Operations
D. Regan, "B" Technician
N. Sereno, "C" Technician
J. Coates, "D" Technician

*denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (333/77-21-01): Fish kill contingency plan. The licensee provided the inspector with a copy of the contingency plan which was submitted to the New York State Department of Environmental Conservation in February 1977, and which has been implemented through the PORC approved procedure, "Ecological Monitoring Program Standard Operating Procedure for J. A. FitzPatrick", and was part of the submittal to the NRC which resulted in the current Environmental Technical Specifications (ETS). The inspector had no further questions in this area.

(Closed) Unresolved Item (333/77-21-07): Environmental Analytical Laboratory and procedures. The inspector reviewed the current laboratory facilities which are located in the Auxiliary Access Point Building on the J. A.

FitzPatrick site and noted that the necessary equipment was calibrated and operating at the time of the inspection, and that operations were conducted according to approved procedures. The inspector had no further questions regarding this item.

(Closed) Unresolved Item (333/78-17-01): TLD positioning. The inspector reviewed selected TLD stations and noted that TLDs appeared to be appropriately located at the stations to minimize siting effects. Those TLDs observed were mounted on the plant side of support posts. The inspector had no further questions regarding this item.

(Closed) Deficiency (333/78-17-08): Solutes discharge. The inspector noted that Amendment 46 to the ETS deleted the requirement for solutes monitoring on May 17, 1979. The inspector had no further questions regarding this item.

(Closed) Deficiency (333/78-17-09): Failure to submit LERs as required. The inspector reviewed selected records in the environmental area completed since the last inspection of the area and determined that for those records reviewed, all LERs had been submitted as required. The inspector had no further questions regarding this item.

(Closed) Deficiency (333/78-17-10): Failure to maintain analytical records. The inspector reviewed selected records of solutes analyses and verified that these records were complete up until May, 1979, at which time these analyses were no longer required. The inspector had no further questions regarding this item.

3. Management Controls

The inspector reviewed the licensee's management controls for the environmental monitoring programs. Areas reviewed included: assignment of responsibility; program audits; corrective action for identified inadequacies and problem areas in the program; and the reporting, analysis, and evaluation of program data.

a. Assignment of Responsibility

The inspector reviewed the organization and administration of the environmental monitoring programs. The program is run by the site Environmental Supervisor who reports to the site Radiological and and Environmental Services Superintendent (RESS). The RESS reports to the Resident Manager through the Superintendent of Power.

The licensee stated that as of January, 1981, the biological monitoring programs are no longer conducted by Texas Instruments, Inc., but are now contracted to Ecological Analysts, Inc.

b. Program Review and Audits

The inspector reviewed the following audits as part of the inspection.

Audit Dates	Program Area Covered
June 5, 1978	Environmental Station Inspection and Sample Collection
October 16-17, 1979	Texas Instruments, Incorporated (biological programs)
December 18-19, 1979	Radiation Management Corp. (RMC) (radiological analyses contractor)
June 24-25, 1980	Niagara Mohawk Surveillance Report SR-80-013, "Environmental Station Inspection and Sample Collection"
October 14, 1980	Texas Instruments, Inc. (TI)
December 10-19, 1980	PASNY Standard Audit No. 347-ETS Sections 2.1, 2.2, 2.3, 3.4, 4.1, and 4.3. (To determine if procedures and schedules existed to satisfy ETS requirements)
February 2-6, 1981	RMC

The inspector noted that the audits of TI covered sample collection, processing, analyses, and data reduction and reporting. Audits of RMC covered sample processing, analyses, and data reduction and reporting. The inspector noted that the licensee, during the December 18-19, 1979 audit of RMC, had questioned the discrepancy between RMC results and EPA values for Cs-137 in EPA Crosscheck Program milk samples. RMC's response to the licensee, dated January 10, 1980, stated that the discrepancy was due to the methodology used in RMC's analysis of the milk and that an alternative method was under investigation which would better assure the preservation of any cesium in the sample. The inspector discussed with the licensee the methodology still being used by the contractor and the possible effects of this methodology on radioactive cesium results reported for milk. The licensee stated that the contractor would perform a complete evaluation of the methodology used for gamma spectral analysis of milk and its effect on cesium results. The inspector stated that the adequacy of gamma spectral cesium results would be considered unresolved pending completion of this study and subsequent review by the NRC (333/81-05-01).

The inspector noted that Standard Audit No. 347 (December 10-19, 1980) was limited to a determination that procedures and schedules existed in the ETS program areas, but did not cover implementation or adequacy of these procedures (except in ETS Section 2.3). The licensee stated that audits similar to No. 347 were scheduled to cover appropriate areas every two years, and that program areas such as instrument calibrations, sample collection (other than those

collected by TI), sample analyses performed by PASNY personnel, and data reduction and reporting were not covered by regular PASNY audits every 12 months. The inspector stated that failure to perform audits of conformance of facility operations to provisions contained in Sections 2.1, 2.2, 3.4, 4.1, and 4.3 of the ETS at least once per 12 months was an item of noncompliance with Section 6.5.2.8 of Appendix A and 5.3.1 of Appendix B (333/81-05-02).

4. Licensee Program for Quality Control of Radiological Analyses

The inspector reviewed the licensee's program for quality control (QC) of laboratory radiological measurements and noted that the analytical contractor (RMC) had its own QC program, and that the licensee conducted a QC program which included the contractor and those analyses performed by PASNY personnel. The analytical contractor in this area and the licensee had both prepared detailed written procedures for their respective QC programs. Environmental samples were also split with the New York State Department of Environmental Conservation. The licensee stated that the contractor QC data was reviewed and evaluated on a routine basis.

The licensee stated that the JAF QC program was being upgraded, and provided the inspector with a copy of the "Draft Environmental Surveillance Program QA/QC Program" description. The inspector reviewed the draft program document and noted that there were clear provisions for:

-- Assignment of responsibility to manage and conduct the program;

-- Numbers and types of samples to be included;

-- Acceptance criteria; and

-- Followup action on identified discrepancies.

The draft program also contained provisions for detailed periodic checks of environmental monitoring stations and equipment.

The licensee stated that this upgraded version of the QA/QC program would be implemented by May 1981. The inspector stated that this program would be reviewed during the next inspection of the area.

No items of noncompliance were identified in this area.

5. Implementation of the Environmental Monitoring Program - Radiological

a. Direct Observation

The inspector toured the site environmental analytical laboratory and reviewed the associated procedures, logs, and instrument calibrations.

The inspector examined selected environmental air sampling and direct radiation monitoring stations, and observed the changing of the air particulate and air iodine collection media, measurement of sample flow rates, the recording of the required information for each sample, and the checks made on each sampler as it was returned to service. The inspector noted that at most air stations (with the exceptions of stations H, I, J, and K) the charcoal cartridge holder did not contain seals, so that the cartridges were therefore loose in the holders. This would allow some of the air from the sampling stream to bypass the cartridge. The inspector stated that this sampling arrangement did not provide adequate sampling of airborne iodine because the air flow through the charcoal cartridge was reduced by an indeterminate amount. The inspector stated that inadequate sampling of airborne iodine was an item of noncompliance with regulatory requirements. The inspector noted that prior to the conclusion of the inspection the licensee had provided adequate seals at those sampler stations where they were lacking, thereby correcting the problem.

The inspector discussed with the licensee other aspects of environmental air sampling and noted that the air sampler inlet tubes each contained a 90 degree bend through which inlet air was deflected before reaching the particulate filter. The inspector discussed with the licensee the advantages of having the inlet air first pass through the particulate filter, thereby eliminating the possibility of line effects on air particulate sampling. The licensee stated that the elbow had been incorporated to keep precipitation from the filter. The licensee stated that the inlet design would be modified to eliminate any possible line effects and that precipitation protection would be provided by an alternate means. This area will be re-examined during a subsequent inspection of the area (333/81-05-03).

b. Review of Reports

(1) Routine

The inspector reviewed the following reports as part of this inspection.

-- Radiological Environmental Surveillance Report, January 1-December 31, 1978

-- Radiological Environmental Surveillance Report, January 1-December 31, 1979

-- RMC Environmental TLD System: Evaluation of Compliance with USNRC Regulatory Guide 4.13-August, 1978

The inspector determined through discussions with the licensee, review of these reports, and review of data that the licensee had reported all required information.

(2) Non-routine

The inspector reviewed the circumstances and licensee's evaluations of the following anomalous measurements reports.

LER No.	Date	Subject Area
78-072	8/29/78	Co-60 in sediment
78-077/04T	9/11/78	Ce-144 in periphyton
78-087/04T	10/18/78	Co-60 in periphyton
78-099/04T	12/20/78	Mn-54, Co-60 in mollusks
79-051/04T	8/29/79	Mn-54 in mollusks
79-114/04T	12/21/79	Co-60 in sediment
80-064/04T	8/4/80	Co-60 in periphyton
80-076/04T	10/2/80	Co-60 in periphyton

The inspector noted that the levels of radioactivity cited in the above reports appeared to represent a negligible environmental impact based on the low levels of activity measured and the dose consequences to man are insignificant based on the low levels of radioactivity and indirect dose pathways to man involved.

The inspector reviewed the potential environmental consequences of LER 80-041/04T-0 and 80-041/04T-Revision 1 concerning a May 13, 1980 release of I-131 and noted that there had been no measured offsite levels associated with the release.

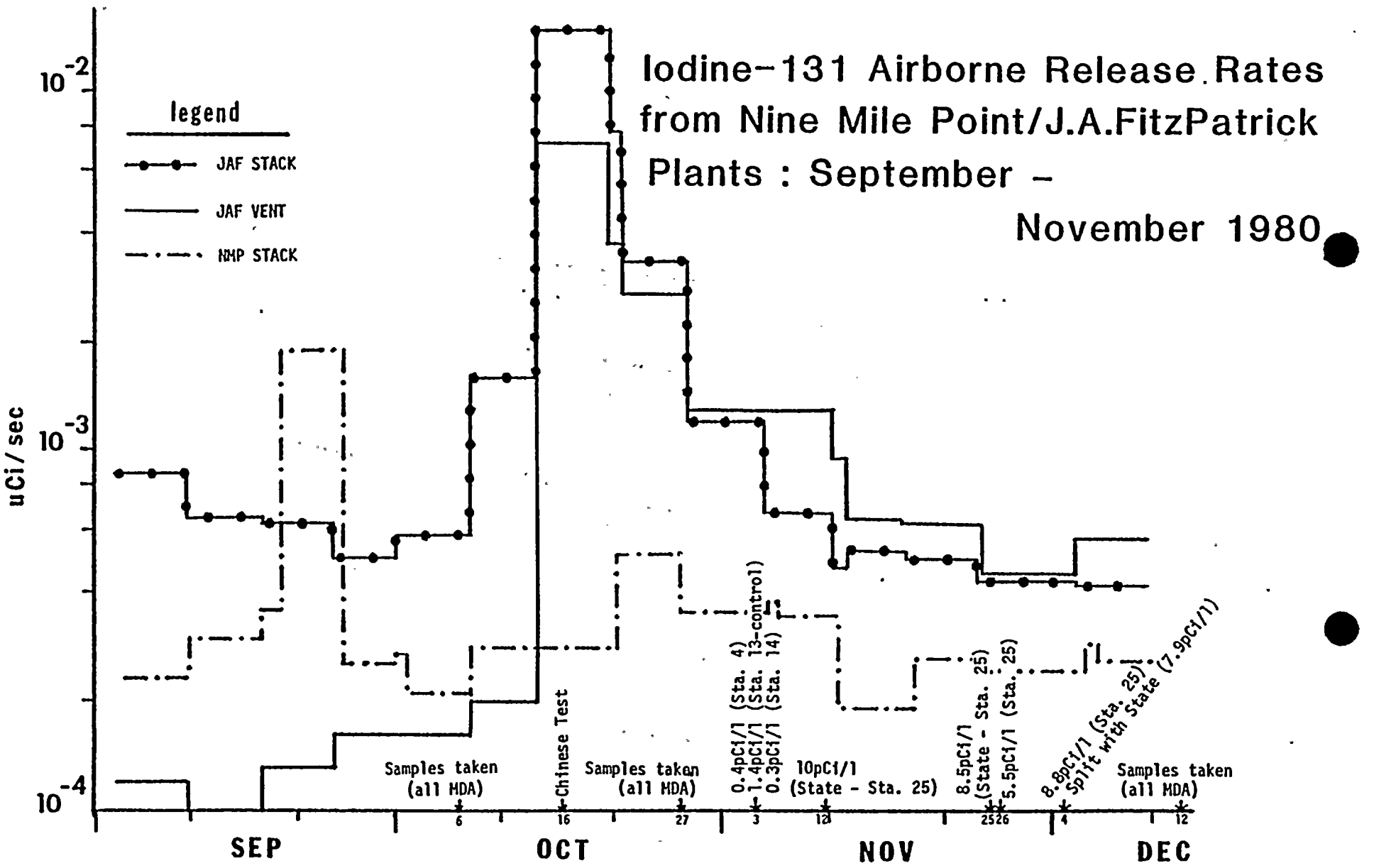
The inspector reviewed a report prepared for the licensee by NUS Corporation titled, "An Evaluation of the Cesium Concentrations in Environmental Milk Samples and Their Significance at the Nine Mile Point - James A. FitzPatrick Site". This report was prepared in response to an elevated Cs-137 level reported for a September 1979 milk analysis at Station No. 25. The inspector stated that based on the above report, it did not appear possible to rule out the Nine Mile Point - J. A. FitzPatrick plants as a source of the measured Cs-137 in milk although neither did it appear likely that the plants were the only source. It is important to note that regardless of source, the reported 53 pCi/l of Cs-137 in milk would produce a whole body exposure of 0.10 mrem/month to an adult (critical individual), and of 0.89 mrem/month to an infant liver (critical organ), calculated using methodology presented in Regulatory Guide 1.109 for maximum exposed individuals. The measured level of 53 pCi/l did not appear to persist for more than one month and was not identified at any other sampling stations. These doses are a small fraction of the 25 mrem/year limit of 40 CFR 190 for members of the general public. The inspector had no further questions regarding this item at this time.

The inspector conducted an independent evaluation of I-131 detected in milk in November, 1980 as described in LER 80-91/04T and reviewed all pertinent available data. Based on peak I-131 airborne release rates from both plants just prior to and during the period in which I-131 was detected in milk, using the pathway models described in Regulatory Guides 1.109 and 1.111, it was not possible to identify as the sole source either plant releases or the October 16, 1980 Peoples Republic of China weapons test and resulting fallout.

The attachment to this report illustrates the airborne iodine-131 releases from both the NMP and JAF sites during the interval September through November 1980. Also shown on the same plot are the date of the weapons test by the Peoples Republic of China on October 16, 1980, and the dates, locations and the I-131 results of all milk samples with positive values. The maximum airborne release rate (from JAF) for I-131 occurred during the week in which the weapons test occurred. Because of the near proximity of the JAF-NMP source to the sampled milk farms, any deposition from this source should have taken place within hours of the release. Deposition from the weapons test, on the other hand, would first be expected to occur approximately two weeks after the test because of the atmospheric diffusion and transport time. The deposition from the latter would also be distributed in time over several weeks.

Review of the milk data (as as depicted in the attachment) has indicated that the first positive iodine measurements in milk occurred approximately two weeks following the weapons test at which time the iodine release rates from both NMP and JAF plants had decreased by a factor of about 10. These positive milk I-131 samples were collected from several locations including the control farm. Subsequent to this date (November 3, 1981), all sampled milk cattle in the area (with the exception of Sampling Station No. 25) were removed from pasture for the winter. Sample Station No. 25 showed an increase in I-131 levels in milk to 10 pCi/l and remained at about that level (about 8 pCi/l) until the end of November, while the NMP-JAF releases continued at about a factor of 20 below the peak release rate.

Consequently, while one cannot easily rule out that the NMP-JAF releases contributed to the I-131 activities measured in three milk samples, it appears at least highly unlikely that these releases were the sole source of the measured activity. Regardless of the source of the I-131 the expected dose consequences would be minor. Only one cow was present at Station No. 25 where the elevated levels were detected, and consumption of this cow's milk with 10 pCi/l of I-131 for the one month period


Iodine-131 Airborne Release Rates from Nine Mile Point/J.A.FitzPatrick Plants : September - November 1980
legend
JAF STACK
JAF VENT
NMP STACK
uCi/sec
10^{-2}
10^{-3}
10^{-4}
Samples taken (all MDA)
Chinese Test
Samples taken (all MDA)
0.4pCi/l (Sta. 4)
1.4pCi/l (Sta. 13-control)
0.3pCi/l (Sta. 14)
10pCi/l (State - Sta. 25)
8.5pCi/l (State - Sta. 25)
5.5pCi/l (Sta. 25)
8.8pCi/l (Sta. 25) Split with State (7.9pCi/l)
Samples taken (all MDA)
SEP
OCT
NOV
DEC
6
16
27
3
12
25
26
4
12

involved would produce 3.8 mrem to an infant thyroid, although no infant consumed milk from this farm (an adult would receive a thyroid dose of 0.5 mrem). The inspector had no further questions regarding the above releases and their consequences at this time. No items of noncompliance were identified in the above areas.

c. Other Records

The inspector reviewed selected results of analyses of the radiological monitoring program, especially the 1980 data for which the annual report was issued subsequent to the inspection, and discussed with the licensee the methodologies used to calculate error and to calculate lower limits of detection (LLD). The inspector determined that the required samples and analyses had been collected and analyzed in accord with the ETS.

No items of noncompliance were identified relative to this area.

d. Meteorological Monitoring

The inspector examined the site meteorological instrumentation, including the meteorological tower which was maintained by Niagara Mohawk Power Corporation (NMPC) and the recorders in the J. A. FitzPatrick Control Room. The licensee stated that the control room recorders displaying data from the NMPC tower are calibrated on a semiannual basis concurrently with the tower instruments, although no records of these calibrations were maintained by PASNY. The inspector pointed out that records of meteorological instrument calibrations, including control room recorders, could be important in determining the reliability of dose calculations based on control room recorder outputs. The licensee stated that records of future calibrations would be maintained by PASNY at the plant. The inspector stated that records of future calibrations will be reviewed during a subsequent inspection of the area (333/81-05-04).

The inspector observed that the licensee also had control room recorders displaying real-time data from an auxiliary 96 foot meteorological tower. The licensee stated that instruments on this tower and the associated control room recorders were not calibrated on a regular basis. The inspector stated that if data from the auxiliary tower is to be used in the event that data is unavailable from the main tower then these instruments should be maintained and calibrated on a regular basis (along with completion of appropriate records). The licensee concurred and the inspector stated that this area would also be reexamined during the next inspection of the area.

No items of noncompliance were identified in this area.

6. Implementation of the Environmental Monitoring Program - Biological/Ecological

The inspector examined the impingement sampling apparatus at the plant side of the intake tunnel and reviewed selected sampling and analytical procedures. Also reviewed was the 1979 annual report of the aquatic ecology studies and selected records and data completed since the last NRC inspection of this area in September 1978 (50-333/78-17).

No items of noncompliance were identified in this area.

7. Nonradioactive Effluent Release Rates and Limits

a. Thermal

The inspector reviewed selected records of the thermal monitoring system since the last inspection of this area, including thermal discharge records, calibration records and related procedures. The inspector also reviewed the circumstances and licensee's evaluations relative to LERs 78-110/04L, 79-052/04L and 79-077/04L concerning thermal discharges and the thermal monitoring system, and noted that any associated environmental impacts appeared to be minimal.

No items of noncompliance were identified in this area.

b. Chemical

The inspector examined selected results of waste neutralization tank pH and conductivity analyses, records of monthly pH meter checks, and related procedures. The inspector reviewed and discussed the circumstances and licensee's evaluations relative to LERs 78-079/04L, 78-088/04L, 78-092/04L, 78-108/04L, and 79-005/04L concerning solutes discharges. This review included the licensee's evaluation of the method of determination of solute concentration. The inspector noted that limits on solutes discharges had been deleted from the ETS by Amendment No. 46 on May 17, 1979. These discharge limits are now contained in the site SPDES permit.

No items of noncompliance were identified in the above area.

8. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. One unresolved item was disclosed during this inspection and is discussed in Detail 3.b.

9. Exit Interview

On February 27, 1981, at the conclusion of the inspection, the inspector met with those individuals denoted in Detail 1. During this meeting the purpose and scope of the inspection were summarized and the inspection findings, including the items of noncompliance and the unresolved item were discussed. The inspector also contacted the licensee by telephone on March 5 and 9, 1981 to discuss one item of noncompliance.