GPU Nuclear Corporation
Post Office Box 388
Route 9 South
Forked River, New Jersey 08731-0388
609 971-4000
Writer's Direct Dial Number:

April 29, 1991

C321-91-2116

Mr. Thomas T. Martin
Regional Administrator
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia. PA 19406

Dear Mr. Martin:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Response to Notice of Violation

NRC letter dated September 6, 1991 forwarded Inspection Report. 90-13 and a notice of violation pertaining to effluent radiation monitoring at Oyster Creek. GPUN responded by letter dated October 19, 1990. GPUN did not concur with the violation and provided the rationale for our position.

NRC letter dated March 29, 1991 addressed our rationale and concluded the violation was correctly cited.

After further consideration, GPUN now concurs with the violation. Attachment 1 to this letter provides our revised response to the violation.

If further information is required, please call Mr. Michael Heller, Licensing Engineer, at (609)971-4680.

Very truly yours,

John J. Barton
Director, Oyster Creek

JJB/MGH/jc
A:NOV90-13

cc: USNRC, Document Control Desk
Senior NRC Resident Inspector

ATTACHMENT I

Violation:

Section 3.15.A of the Radiological Effluent Technical Specifications states in part that "When less than the minimum number of radioactive liquid effluent monitoring instrumentation channels are OPERABLE, take the ACTION shown in Table 3.15.1. Make every reasonable effort to restore the instrument to OPERABLE status within 30 days and, if unsuccessful, explain in the next Semiannual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner."

Contrary to the above requirements, the radwaste overboard discharge radiation monitor has been inoperable since the issuance of the Radiological Effluent Technical Specifications in 1986. No reasonable effort has been made to restore the monitor to operable status. In fact, this monitor has been inoperable since October 1982.

Response:

GPUN concurs with the violation.

For corrective action, GPUN has prepared and submitted Technical Specification Change Request (TSCR) No. 170 which proposes deletion of the above requirements. A copy of TSCR No. 170 is attached for reference.

GPUN had previously intended to delete the above requirements under the provisions of 10 CFR 50.59 after the radiological effluent technical specifications had been relocated to existing licensee controlled documents in accordance with Generic Letter 89-01. After further consideration, GPUN has decided to submit TSCR 170 as soon as possible to expedite resolution of this non-compliance.

Full compliance will be achieved when the TSCR No. 170 is approved by the NRC.

GPU Nuclear Corporation
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Route 9 South
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609 971-4000
Writer's Direct Dial Number:

C321-91-2126
April 29, 1991

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Gentlemen:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Technical Specification Change Request No. 170

Pursuant to 10 CFR 50.90, GPU Nuclear Corporation, operator of the Oyster Creek Nuclear Generating Station (OCNGS), Provisional Operating License No. DPR-16, requests a change to Appendix A of that license.

The attached Technical Specification Change Request proposes to delete the requirement of Section 3.15.A, Table 3.15.1, that a liquid effluent radiation monitor be available during liquid effluent discharges from the radwaste processing facilities. This change will recognize the primary method of monitoring batch liquid effluent releases from the radwaste facility as the method of double sampling and independent verification of release rates and proper valve alignment. This method is the current provision of Table 3.15.1, Action 110, when the liquid effluent monitor is inoperable.

The existing monitor and associated hardware are incapable of meeting the operability requirements of Section 3.15.A and have been out of service since 1981. OCNGS has released liquid effluent from the radwaste processing facilities in compliance with the alternate provision. Our intent to eliminate the radiation monitor requirement was previously conveyed in GPUN letter (Fiedler, GPUN to Zwolinski, NRC) dated August 13, 1986. Repairs or replacements to the existing hardware could only be accomplished at significant expense. Our assessment concluded that this expense is unjustified based on past liquid release performance and through a cost/benefit evaluation.

We consider this request to be of moderate priority since liquid effluent releases are currently permitted with an inoperable monitor. If approved, we would be prepared to implement the changes upon issuance of the license amendment.

This change request has been reviewed in accordance with Section 6.5 of the OCNGS Technical Specifications, and using the standards in 10 CFR 50.92 we have concluded that these proposed changes do not constitute a significant hazards consideration.

Pursuant to 10 CFR 50.91 (b) (1), a copy of this change request has been sent to the State of New Jersey Department of Environmental Protection.

Very truly yours,

J. J. Barton
Director, Oyster Creek

JJB/PC/amk

Attachment

cc: Administrator, Region I

NRC Resident Inspector

Mr. Alex Dromerick, NRC Project Manager

TSCR170

OYSTER CREEK NUCLEAR GENERATING STATION
PROVISIONAL OPERATING LICENSE NO. DPR-16
DOCKET NO. 50-219
TECHNICAL SPECIFICATION CHANGE REQUEST NO. 170

Applicant hereby requests the Commission to change Appendix A to the above captioned license as below, and pursuant to 10 CFR 50.92, an analysis concerning the determination of no significant hazards considerations is also presented:

1. Sections to be Changed

Section 3.6, Section 3.15, and Section 4.15

2. Extent of Change

Add Technical Specification 3.6.B.4 and associated basis. Delete Technical Specification 1(a) of Table 3.15.1 and Action 110 of Table 3.15.1 and modify the associated Basis. Delete Technical Specification 1(a) of Table 4.15.1 and Table 4.15.1 Notations (d) and (g).

3. Changes Requested

The requested changes are shown on attached Technical Specifications pages 3.6-1a, 3.6-1b, 3.6-2, 3.6-7b, 3.15-2, 3.15-4, 3.15-5, 4.15-2 and 4.15-3.

4. Discussion

Technical Specifications Section 3.15.A.1, (Table 3.15.1, Item 1(a)) currently requires a radiation monitor to be operable during batch releases via the liquid radwaste effluent line. When the radiation monitor is inoperable, liquid radwaste batch discharges are allowed provided double sampling and independent verification of release rate and valve alignment are performed as specified by Action 110 of Table 3.15.1. This Technical Specification Change Request proposes to eliminate the requirement to monitor the liquid radwaste effluent line with a radiation monitor and recognize batch releases with double sampling and verification as the primary means of controlling releases via this pathway.

The existing monitor and associated hardware are incapable of meeting the operability requirements of Technical Specification 3.15.A and have been out of service since 1981. OCNGS has released liquid effluent from the radwaste processing facilities in compliance with the alternate provision. Our intent to eliminate the radiation monitor requirement was previously conveyed in GPUN letter (Fiedler, GPUN to Zwolinski, NRC) dated August 13, 1986. Repairs or replacements to the existing hardware could only be accomplished at significant expense. Our assessment concluded that this expense is unjustified based on past liquid release performance from this pathway and through a cost/benefit evaluation both of which are discussed below.

The proposed change involves the OCNGS liquid radwaste processing systems and effluent monitoring instrumentation. The change establishes existing administrative controls, which are already approved by the NRC, as the primary method of monitoring discharges from the liquid effluent release pathway. Discharge from this pathway initiates from the High Purity System sample tanks, the Chemical Waste Distillate sample tanks or the Laundry Drain tank and is performed on a batchwise basis. These tanks are liquid hold points and are isolated, recirculated and sampled prior to every release.

Prior to discharge, independent release rate and valve verifications are performed. The batch is sampled again prior to completion of discharge. These actions ensure that radioactivity concentrations in liquid effluents below the 10 CFR 20 Appendix B, Table II, Column 2, limits are achieved.

Discharges from secondary sources to the effluent discharge line are prevented administratively. These sources are never lined up to the effluent discharge line. If they were inadvertently lined up, the discharge flow control valve and isolation valve would be closed preventing a release.

An inadvertent release due to equipment failure would involve simultaneous failure of two air operated isolation valves and a flow control valve. All valves are designed to fail closed on loss of air or on loss of power. Therefore, such failure probability is low.

All liquid eligible for release has been treated, as necessary, to satisfy Specification 3.6.B in that radioactivity concentration in treated water, exclusive of tritium and noble gases, must be less than 0.001 uCi/ml. Curie content is limited as a result of an effective treatment process and/or dilution of the liquid inputs to the tanks from non-radioactive sources.

Oyster Creek management has undertaken an aggressive water management policy which focuses on early identification of unusual inleakage and expedient corrective action. The goal is to achieve zero liquid releases. For instance, from January 1, 1985 through March 31, 1988 liquid process effluents have been limited to 1.3 percent of total water processed. For the years 1988 through 1990 only about 5.3 percent of the water processed was discharged. There were no batch releases during 1990.

A cost/benefit evaluation was performed in 1988 in an attempt to justify the cost to install a new radwaste discharge effluent line monitor. For the evaluation, a hypothetical situation was used where all processed liquid during 1987 inadvertently leaked to the discharge canal and went undetected as a result of the absence of a discharge monitor. Exposure data for 1987 was used since it was the most recent information available and therefore most representative of liquid release practices at the time. It was typical of reactor coolant activity and it had the highest specific total body dose (total body dose divided by volume released) for any annual period reported. A brief look at effluent releases during 1988 and 1989 showed no significant changes except for one discharge in December 1989 which was not representative of normal practice. This release was well within all applicable limits.

The annual off-site dose to an individual standing at the Route 9 bridge at the discharge canal resulting from the postulated event was estimated to be:

$$\frac{2 \times 9.9 \text{ E-4}}{0.016} = 0.12 \text{ MREM}$$

where 9.9 E-4 = calculated total body dose in millirem to a receptor during the second half of 1987. This value was developed using models and methodology outlined in USNRC Regulatory Guide 1.109 and proposed Regulatory Guide 1.110.

0.016 = fraction of processed water released to the discharge canal during the second half of 1987

2 = annualization factor

0.12 MREM represents 4% of the allowable annual total body dose to an individual per 10 CFR 50 Appendix I.

An engineering evaluation performed in 1983 determined replacement was the preferable option to restore operability. The evaluation estimated the cost to provide a monitor at $162,000 (1983 dollars). This dollar figure is not adjusted to present day dollars to add more conservatism to this evaluation.

10 CFR 50 Appendix I, Section II.D, establishes $1000 per total body man-rem as the cost effective ALARA guideline for adding equipment. Appendix I is vintage 1978. Therefore, $1000 in 1978 is equivalent to $5,234 in 1988 dollars using an extremely conservative annual inflation rate of 18 percent. Utilizing present value dollars is more conservative than using 1978 dollars.

$$P = 1{,}000(1 + i)^{n} = 5{,}234$$

where i = annual inflation rate = .18 and
n = number of years = 10

To achieve Appendix I cost effectiveness, approximately thirteen thousand individuals would have to be continuously present at the defined receptor location (Route 9 Bridge) accumulating dose via the limiting pathway (injestion of shellfish) over the remaining life of the plant (20 years).

$$\frac{162{,}000 \text{ Dollars}}{5{,}234 \frac{\text{Dollars}}{\text{People-Rem}} \times 0.00012 \text{ Rem} \times 20 \text{ Years}} = 12{,}896 \text{ People}$$

The occupational exposure to install a new monitor was estimated to be approximately 300 mrem. If OCNGS were to continue to operate for another 20 years, there would have to be a savings of at least 15 mrem per year (300 mrem divided by 20 years) to offset the exposure due to installation. Since the worst case annual offsite dose was previously estimated to be 0.12 mrem per year, which is significantly less than the 15 mrem/year, the exposure due to installation is not justified.

Personnel exposure attributed to the proposed double sampling and verification process would more than likely be less than personnel exposure received due to maintenance, calibration, source and channel checks on a new monitor if one were installed.

Conclusion

The proposed change to section 3.15.A.1, follows up on GPUN's previously conveyed intentions to the NRC. Approval of this change request will allow OCNGS to continue using its currently acceptable method. The Technical Specifications currently require discharges be performed by double sampling and independent release rate and valve verification. This method of monitoring provides greater assurance that 10 CFR 20 release limits are maintained during controlled release by eliminating dependency on existing unreliable instrumentation.

The installation of a new monitor is not justified based on the very conservative cost-benefit analysis performed utilizing criteria set forth in Appendix I to 10 CFR 50. By virtue of radwaste processing capabilities, sample tank batch activity is sufficiently low to guarantee compliance with 10 CFR 20 Appendix B, Table II, radionuclide concentration limits. The protection provided by its presence is disproportionate to the cost of restoring operability.

Determination

We have determined that the proposed Technical Specification change involves no significant hazards considerations as discussed below.

1. The change will not involve significant increase in the probability or consequence of any accident previously evaluated.

There are no postulated accidents that have been previously evaluated for normal batch releases via this pathway. Additionally, since the effluent radiation monitor has been out of service since 1981, OCNGS has relied on previously approved administrative controls and practices to perform batch releases. The water treatment process lowers activity concentration to very low values. Dedicated tanks are used as the sampling, recirculation and hold point prior to discharge. Independent valve verification and sampling prior to and upon completion of batch discharges ensure controlled and monitored releases. Inadvertent release due to equipment failures would involve simultaneous failure of three isolation valves. The proposed Technical Specification change does not alter any initial condition assumed for any previously evaluated condition.

2. The proposed change does not create the possibility of a new or different accident from any accident previously evaluated.

The proposed change does not result in a deviation from existing approved practices. No new release paths are being established. The characteristics including curie content of treated water will not change. The same administrative controls will continue to be exercised.

3. A significant reduction in margin of safety is not involved.

The current Technical Specification Basis for Section 3.15.A recognizes that the use of a radiation monitor is consistent with the requirements of General Design Criteria 60 and 64 of Appendix A to 10 CFR 50. This change will eliminate the use of the radiation monitor in the radwaste discharge line and will rely solely on the currently approved method of double sampling and independent release rate and valve verification. This method of monitoring provides greater assurance that 10 CFR 20 release limits are maintained during controlled releases by eliminating the dependence on existing unreliable instrumentation.

The water treatment process lowers radioactivity concentrations to very low values. The processing method and radioactivity levels of any discharged water will remain the same. Therefore, the impact of an inadvertent release would be negligible. Utilizing this double sampling and verification method does not significantly reduce the margin of safety.

3.6 Radioactive Effluents

Applicability: Applies to the radioactive effluents of the facility.

Objective: To assure that radioactive material is not released to the environment in an uncontrolled manner and to assure that the radioactive concentrations of any material released is kept as low as is reasonably achievable and, in any event, within the limits of 10 CFR part 20.106 and 40 CFR Part 190.10(a).

Specification

3.6.A. Reactor Coolant Radioactivity

The specific activity of the primary coolant except during REFUEL MODE shall be limited to: Less than or equal to 0.2 microcuries per gram DOSE EQUIVALENT (D.E.) I-131.

Limiting Condition for Operation

1. Whenever an isotopic analysis shows reactor coolant activity exceeds 0.2 uCi/gram DOSE EQUIVALENT (D.E.) I-131, operation may continue for up to 48 hours. Additional analyses shall be done at least once per 4 hours until the specific activity of the primary coolant is restored to within its limit.

2. If the reactor coolant activity is greater than 0.2 microcuries per gram DOSE EQUIVALENT I-131 for more than 48 hours during one continuous time interval or greater than 4.0 microcuries per gram D.E. I-131, be in at least SHUTDOWN CONDITION within 12 hours.

3. Annual Reporting Requirement

   The results of specific activity analyses in which the reactor coolant exceeded the limits of Specification 3.6.A shall be reported on an annual basis. The following information shall be included: (1) Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded until after the radioiodine activity is reduced to less than the limit; (2) Results of the last isotopic analysis for radioiodine performed prior to exceeding the limit, results of analysis while limit was exceeded and results of one analysis after radioiodine activity was reduced to less than the limit. Each result should include date and time of sampling and the radioiodine concentrations; (3) Clean-up system flow history starting 48 hours prior to the first sample in which the limit was exceeded until after the radioiodine activity is reduced to less than the limit; (4) Graph of the I-131 concentration and one other radioiodine isotope concentration in microcuries per gram as a function of time for the duration of the specific activity above the steady-state level; and (5) The time duration when the specific activity of the primary coolant exceeded the radioiodine limit.

4. With the reactor mode switch in Run or Startup position, with:

   1. Thermal power changed by more than 15% of rated thermal power in one hour*, or

   2. The off-gas level, at the SJAE, increased by more than 10,000 microcuries per second in one hour during steady state operation at release rates less than 75,000 microcuries per second, or

   3. The off-gas level, at the SJAE, increased by more than 15% in one hour during steady state operation at release rates greater than 75,000 microcuries per second,

take sample and analyze at least one sample, between 2 and 6 hours following the change in thermal power or off-gas level and at least once per four hours thereafter, until the specific activity of the primary coolant is restored to within limits.

3.6.B Liquid Radwaste Treatment and Discharge

Applicability: To liquid radwaste batches for discharge as aqueous effluent.

1. Any untreated batch of liquid radwaste shall be treated (in appropriate liquid radwaste treatment equipment) before discharge as aqueous effluent when the radioactivity concentration, exclusive of tritium and dissolved noble gases, in the batch exceeds 0.001 Ci/ml.

2. When radioactive liquid waste is discharged without treatment and in excess of the above limit, in lieu of any other report, prepare and submit to the Commission within 30 days pursuant to Specification 6.9.3 a Special Report that includes the following information.

   a. Identification of any inoperable equipment or subsystems, and the reason for the inoperability.

   b. Action(s) taken to restore the inoperable equipment to OPERABLE status, and a

   c. Summary description of action(s) taken to prevent a recurrence.

* If there are consecutive thermal power changes by more than 15% per hour, take sample and analyze at least one sample between 2 and 6 hours following the change and at least once per four hours thereafter, until the specific activity of the primary coolant is restored to within limits.

3. Specifications 3.0.A and 3.0.B do not apply.

4. Liquid radwaste discharges may occur provided that:

   a. At least two independent batch samples shall be taken, one prior to discharge and one near the completion of discharge. These samples shall be analyzed in accordance with Specification 4.6.I.1.

   b. Prior to discharge, qualified personnel shall determine an acceptable release rate and establish proper discharge valving. Other qualified personnel shall independently verify that the release rate and discharge valving are acceptable.

3.6.C Radioactive Liquid Storage

Applicability: Applies at all times to specified outdoor tanks used to store radioactive liquids.

1. The quantity of radioactive material, excluding tritium, noble gases, and radionuclides having half-lives shorter than three days, contained in any of the following outdoor tanks shall not exceed 10.0 curies:

   a. Waste Surge Tank, HP-T-3

   b. Condensate Storage Tank

2. In the event the quantity of radioactive material in any of the tanks named exceeds 10.0 curies, begin treatment as soon as reasonably achievable, continue it until the total quantity of radioactive material in the tank is 10 curies or less, and describe the reason for exceeding the limit in the next Semi-annual Effluent Release Report.

3. Specifications 3.0.A and 3.0.B do not apply.

3.6.D Condenser Offgas Treatment

Applicability: Whenever the main condenser air ejector system is in operation except during startup or shutdown with reactor power less than 40 percent of rated. In addition, the Augmented Offgas System need not be in operation during end of cycle coast-down periods when the system can no longer function due to low offgas flow.

The LCO statement permitting power operation to continue for limited time periods with the primary coolant's specific activity greater than 0.2 microcuries per gram DOSE EQUIVALENT I-131, but less than or equal to 4.0 microcuries per gram DOSE EQUIVALENT I-131, accommodates possible iodine spiking phenomenon which may occur following changes in thermal power. The reporting of cumulative operating time with greater than 0.2 microcuries per gram DOSE EQUIVALENT I-131 will allow sufficient time for Commission to evaluate the circumstances.

Information obtained on iodine spiking will be used to asess the parameters associated with spiking phenomena. A reduction in frequency of isotopic analysis following power changes may be permissible if justified by the data obtained.

The surveillance requirements provide adequate assurance that excessive specific activity levels in the reactor coolant will be detected in sufficient time to take corrective action.

3.6.B This specification implements the requirements of 10 CFR 50.36a related to operation of radioactive waste treatment equipment to keep radioactive material in effluents to unrestricted areas as low as reasonably achievable. Radioactive liquid wastes generated at the OCNGS are controlled on a batch basis with each batch processed by a method appropriate for the quality and concentration of material present. Below 0.001 uCi/ml, it is not cost-beneficial to treat a batch of aqueous waste for the purpose of reducing potential radiation exposure offsite. Hence specification 3.6.B implements 10 CFR Part 50 Appendix I provisions for cost-beneficial treatment of radioactive liquid waste before release in effluent. Each batch of radioactive liquid waste is sampled and analyzed for radioacivity before release to the discharge canal so that an appropriate discharge rate can be determined, accounting for dilution by condenser cooling water and/or canal flow.

The method of double sampling and independent verification of release rate and valve alignment is adequate to ensure liquid radwaste batch discharges are in compliance with the concentration limits of 10 CFR 20 in the discharge canal at the Route 9 bridge.

4. When less than the minimum number of radioactive gaseous monitoring instrumentation channels are OPERABLE, take the ACTION shown in Table 3.15.2. Make every reasonable effort to restore the instrument to OPERABLE status within 30 days and, if unsuccessful, explain in the next Semiannual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner.

5. The Provisions of Specifications 3.0.A, 3.0.B, and 6.9.2 are not applicable.

Basis:

A. The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The use of this instrumentation is consistent with the requirements of General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50. A radioactivity monitor on the liquid effluent line from the Turbine Building Sump No. 1-5 initiates a trip to stop the effluent discharge pump when the trip setpoint is exceeded. The reactor service water system discharge line radioactivity monitor initiates an alarm in the reactor control room when the alarm setpoint is exceeded. A method for double sampling and independent verification of release rate and valve alignment is used in lieu of a radiation monitor for batch releases via the liquid radwaste effluent line.

The alarm/trip setpoint for each of these instruments is calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20.106.

B. The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during releases of gaseous effluents. The alarm/trip setpoint for each of the noble gas monitors is calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20.106. The instrumentation in Table 3.15.2 also includes provisions for monitoring hydrogen below the explosive level in the offgas system downstream from the recombiner. The operability and use of this instrumentation is consistent with the requirements of General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50. The offgas hydrogen monitor and the radioactive gas monitors for the condenser air ejector offgas, the stack effluent, and the offgas building exhaust ventilation have alarms which report in the reactor control room. The offgas hydrogen monitor initiates a bypass of the Augmented Offgas System in the event the setpoint is exceeded.

The Stack and the Turbine Building exhaust ventilation effluent air are monitored by a radioactive gaseous effluent monitoring system. It can measure the gross concentration of radioactive noble gases. A grab sample of the effluent air will be taken at least once per month and analyzed for the principal noble gas radionuclides (Reference Table 4.6.2).

The gross gamma activity concentration of noble gas in Stack effluent is displayed in the reactor control room. That channel also causes an alarm

TABLE 3.15.1

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

	Instrument	Minimum[a] Channels Operable	Applicability	Action
1.	GROSS RADIOACTIVITY MONITORS			
	a. [Deleted]			
	b. Reactor Building Service Water System Effluent Line	1	b	112
	c. Turbine Building Sump No. 1-5	1	b	114
2.	FLOW MEASUREMENT DEVICES			
	a. Liquid Radwaste Effluent Line	1	b	113

Table 3.15.1 Notations

a. Instrument channels shall be OPERABLE and in service as indicated except that a channel may be taken out-of-service for the purpose of a check, calibration, test, or maintenance without declaring the channel to be inoperable.

b. During releases via this pathway.

ACTION 112 With no channel OPERABLE, effluent releases via this pathway may continue provided that, at least once per 24 hours during the release, grab samples are collected and analyzed for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-6} microcuries/ml.

ACTION 113 With no channel OPERABLE effluent releases via the affected pathway may continue provided the flow is estimated with the pump curve or change in tank level, at least once per batch during a release.

ACTION 114 With no channel operable effluent may be released provided that before initiating a release:

1. A sample is taken and analyzed in accordance with Specification 4.6.I.1.

2. Qualified personnel determine and independently verify the acceptable release rate.

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Instrument	Channel Check	Source Check	Channel Calibration	Channel Functional Test	Surveillance Required[a]
1. Gross Radioactivity Monitors					
a. [Deleted]					
b. Reactor Building Service Water System Effluent Line	D	M	R[f]	Q[e]	b
c. Turbine Building Sum No. 1-5	D	M	R[f]	Q[e]	b
2. Flow Rate Measurement Devices					
a. Liquid Radwaste Effluent Line	D[h]	N.A.	R	Q	b

Legend S = once per 12 hours, D = once per 24 hours, W = once per 7 days,
M = once per 31 days, Q = once per 92 days, SA = once per 184 days,
R = once per 18 months, S/U = before each reactor startup,
P = completed before each release, N.A. = Not Applicable.

TABLE 4.15.1 NOTATIONS

a. Instrumentation shall be OPERABLE and in service except that a channel may be taken out of service for the purpose of a check, calibration, test or maintenance without declaring it to be inoperable.

b. During releases via this pathway.

c. This notation not used.

d. This notation not used.

e. The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:

1. Instrument indicates measured levels above the alarm setpoint.
2. Instrument indicates a downscale failure.
3. Instrument controls not set in operate mode.
4. Instrument electrical power loss.

f. The CHANNEL CALIBRATION shall be performed according to established station calibration procedures.

g. This notation not used.

h. A CHANNEL CHECK shall consist of verifying indication of flow during effluent release. A CHANNEL CHECK shall be made at least once during any day on which a release is made.

i. The CHANNEL FUNCTIONAL TEST shall also demonstrate that Control Room alarm annunciator occurs if any of the following conditions exist:

1. Instrument indicates measured levels above the alarm setpoint.
2. Instrument indicates a downscale failure.