GPU NUCLEAR

GPU Nuclear, Inc.
U.S. Route #9 South
Post Office Box 388
Forked River, NJ 08731-0388
Tel 609-971-4000

August 29, 1997
6730-97-2219

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

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Operating License No. DPR-16
Docket No. 50-219

Technical Specification Change Request No. 203
Tech. Spec. 24-Month Su:.eillance Extensions
Supplemental Information Requested by NRC (TAC No. M96906)

On May 9, 1997 and August 14, 1997 telephone conferences were held between GPU Nuclear (GPUN) Inc. and the Nuclear Regulatory Commission (NRC). During the call, the NRC's Staff requested additional information to supplement the GPUN response letters dated March 25, 1997 and June 6, 1997 (GPUN Letter Nos. 6370-97-2028, and 2165 respectively) to NRC's Request for Additional Information (RAI).

A001

The requested information to supplement the RAI response is hereby provided by Attachment to this letter, as mutually agreed upon during the telephone conference call. This information is for clarification only and does not impact upon the safety evaluations or the guidance of GL 91-04, as applicable.

File No. 96069

Pursuant to 10 CFR 50.91 (b) (1), a copy of this RAI response supplement has been sent to the State of New Jersey Department of Environmental Protection. If you have any questions concerning this matter please contact Sr. Licensing Engineer Mr. G. M. Gurican at (201) 316-7972.

Sincerely,

Michael B Roche

Michael B. Roche
Vice President and Director
Oyster Creek

MBR\gmg
Attachment

cc: NRC Project Manager
Administrator, Region I
NRC Sr. Resident Inspector

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Post Office Box 388
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August 29, 1997
6730-97-2219

Mr. Kent Tosch, Chief
Bureau of Nuclear Engineering
Department of Environmental Protection
CN 411
Trenton, NJ 08625

Dear Mr. Tosch:

Subject: Oyster Creek Nuclear Generating Station
Operating License No. DPR-16
Technical Specification Change Request No. 203
Supplemental Information

Enclosed herewith is one copy of the information which supplements GPUN's response to NRC's Request for Additional Information (RAI) on TSCR No. 203, for the Oyster Creek Nuclear Generating Station Operating License.

The TSCR No. 203 RAI response was filed with the United States Nuclear Regulatory Commission on March 25, 1997; and an RAI Errata was filed on June 6, 1997.

Sincerely,

Michael B. Roche

Michael B. Roche
Vice President and Director
Oyster Creek

MBR/gmg
Attachment

File No. 96069

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GPU Nuclear, Inc.
U.S. Route #9 South
Post Office Box 388
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Tel 609-971-4000

August 29, 1997
6730-97-2219

The Honorable L. Nick
Mayor of Lacey Township
818 West Lacey Road
Forked River, New Jersey 08731

Subject: Oyster Creek Nuclear Generating Station
Operating License No. DPR-16
Technical Specification Change Request No. 203
Supplemental Information

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Sincerely,

Michael B. Roche

Michael B. Roche
Vice President and Director
Oyster Creek

MBR/gmg
Attachment

File No. 96069

ATTACHMENT

Oyster Creek Nuclear Generating Station (OCNGS)
Operating License No. DPR-16
Docket No. 50-219
Technical Specification Change Request No. 203

SUPPLEMENTAL INFORMATION

1. SLOPE OF THE REGRESSION LINE BASED ON SURVEILLANCE DATA:

Calculated parameters such as correlation coefficient, slope associated with instrument channels and sample size are listed below. These values are from a calculation C-1302-640-5350-009, Rev. 1

Tag No.	Instrument Function/Vac Trip System No.	Correlation Coefficient (*r*)	Calculated Slope (X coefficient) (b)	Sample Size (# of Data Points)
LVA-1	Alarm/1	34.24%	-0.0004136	39
RSCS-11	Trip/1*(VT1)	35.98%	-0.0003585	39
RSCS-12	Trip/**(VT1)	37.92%	-0.003795	39
LVA-2	Alarm/2	5.22%	0.0001026	33
RSCS-21	Trip/2*(VT2)	2.16%	0.0000365	31
RSCS-22	Trip/2**(VT2)	3.46%	0.0000584	31
VT-1	Turbine Trip	31.30%	-0.0004589	14
VT-2	Turbine Trip	6.53%	-0.0001055	10

* Part of RPS Trip System 1
** Part of RPS Trip System 2
VT1 Vacuum Trip System 1
VT2 Vacuum Trip System 2

Of the above, the Technical Specification instruments include: RSCS-11, RSCS-12, RSCS-21, RSCS-22. The correlation coefficient is not significant for any of the instruments including RPS instrumentation. The slope is indicative of drift. As can be seen from the data on the Table above for instruments in the RPS trip system the slope is practically ZERO indicating small or nearly no drift at all.

2. **DISCUSSION OF THE GENERAL METHODOLOGY OF STATISTICAL ANALYSIS IN THE ORIGINAL TSCR SUBMITTAL**

The GPUN description of the methodology of the statistical analysis in TSCR203 submittal and calculation C-1302-640-5350-009 Rev. 1 interchangeably used the 95% confidence interval as a "Tolerance Range." A Staff concern was that the "tolerance" represents a 95% confidence with a 95% proportion. The intent of GPUN's description of tolerance in the TSCR methodology and calculation is to represent an engineering tolerance since the calculated 95% confidence is comparable to the procedural tolerance which is as-found acceptance criteria. Use of the term tolerance range, meaning engineering tolerance range, is identical to the calculated 95% confidence interval. The TSCR 203 RAI Errata submitted on June 6, 1997 by GPUN Letter No. 6730-97-2165 reflects the use of a confidence interval, where applicable, in place of tolerance range. However, the calculation which was submitted will not be revised at this time to reflect this wording change.

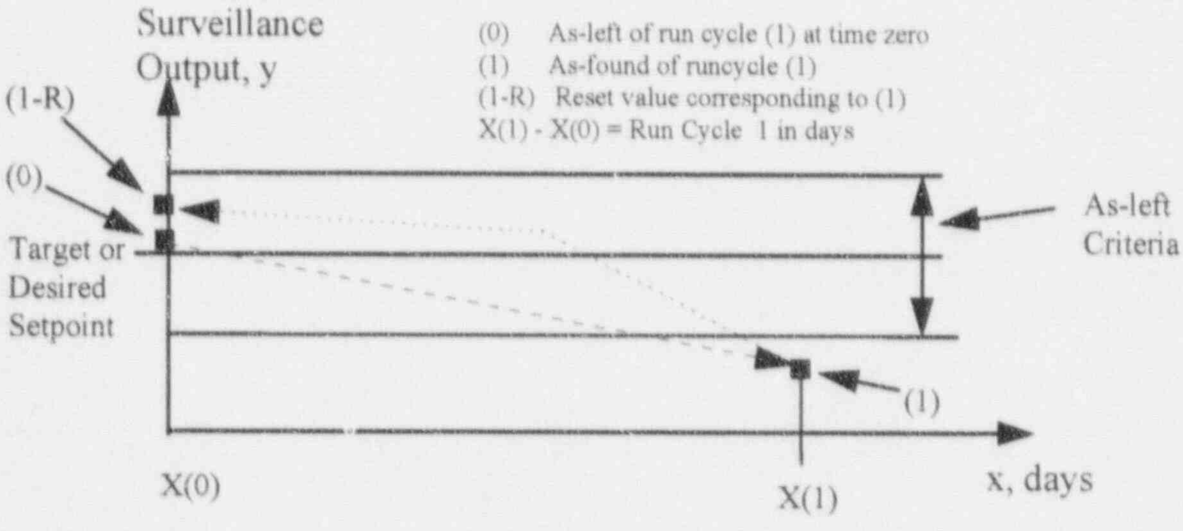
3. DERIVATION OF THE SAMPLE SIZE:

The low vacuum trip input to the reactor trip system comes from four vacuum switch assemblies (VSAs): RSCS-11, RSCS-12, RSCS-21, and RSCS-22. Two sequential numbers in the suffix represent vacuum trip system identification number and RPS trip system identification number, respectively. Calculation C-1302-640-5350-009 Rev. 1 Sheet 13 of 13 shows a pictorial configuration of the switch-bellows combination. Accordingly, the RSCS-11 and RSCS-12 both are a part of vacuum trip system # 1 and RPS trip systems 1 and 2 respectively, and RSCS-21, RSCS-22 are part of vacuum trip system # 2 and RPS trip systems 1 and 2 respectively.

Vacuum from each condenser is fed to two bellows: 1A & 2A bellows which are connected to A- condenser, 1B & 2B bellows to B-condenser and 1C & 2C to C-condenser. All 1 and 2 bellows are associated with vacuum trip system # 1 & 2 respectively. Any of the 1A, 1B or 1C bellows, on low vacuum, will actuate VSAs RSCS-11 and RSCS-12 in RPS Trip System 1 & 2 respectively. Similarly, on low vacuum, any one of the 2A, 2B or 2C bellows will actuate VSAs RSCS-21, RSCS-22 in RPS Trip System 1 & 2 respectively.

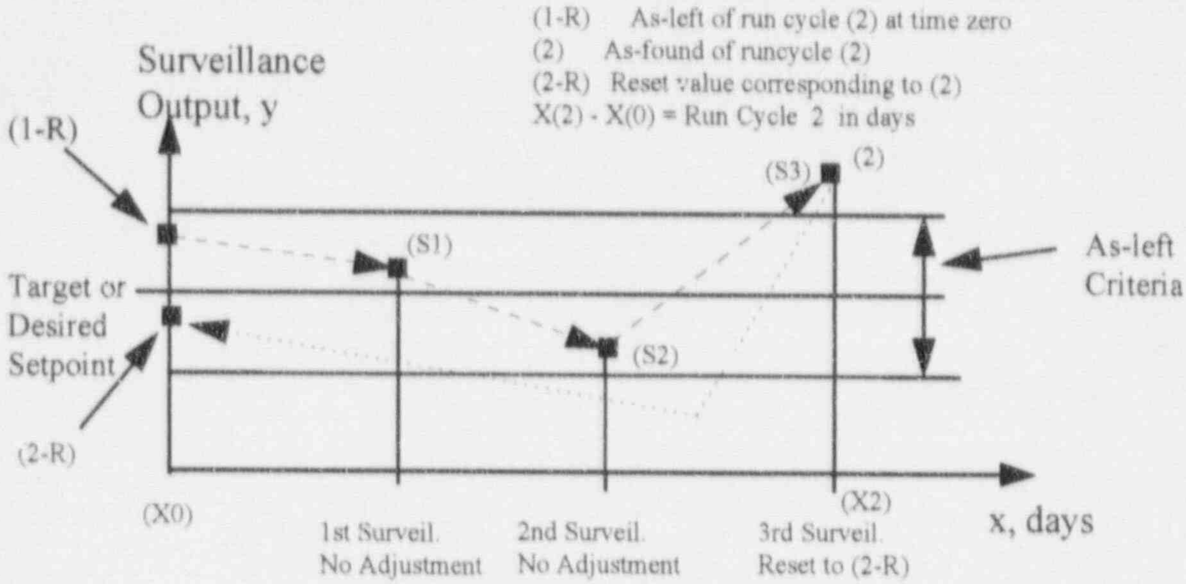
During surveillance, each bellows in a vacuum trip system will actuate two switches in different RPS Trip System 1 & 2. During surveillance, all three bellows in a given vacuum trip system are maintained at 28" Hg vacuum and one out of the three is bled slowly to the trip setpoint. Thus at each surveillance, each switch gets checked three times, once for each bellows. If a switch actuation setpoint associated with a given bellows is outside the as-left tolerance, it is adjusted to as-left criteria.

Every time a switch is adjusted with respect to a bellows, the run time for that switch-bellows combination is set to zero (0). If a switch was adjusted at the previous surveillance its run cycle was set to zero then and at the next surveillance it was again adjusted, in such case there will be two sample or data points.



Process Run Cycle No. 1, Days
# of data points = 2, i.e., (0) & (1)

If a switch is not adjusted at the next two surveillances but was reset at the third surveillance, the process cycle has a longer continuous run and in that event there will be four (4) sample points for that run cycle. See examples below.



Process Run Cycle No. 2, Days
# of data points = 4, i.e., (1-R), (S1), (S2) & (S3)

4. CONSERVATISM IN THE CALCULATED RESULTS:

1. Data for a five year period from February 1989 to November 1994 was used for the analysis.

2. The continuous run cycle duration for the last of the analyzed data sets of all 12 switch-bellows in combination was 664 days, and this did not violate the as-found acceptance criteria. A duration of 645 days and 595 days of continuous run cycle was experienced by 10 switch bellows sets and 2 switch-bellows sets, respectively, without violating the as-found acceptance criteria.

3. The predicted confidence interval at 30 months and also at 36 months is within the as-found acceptance criteria.

4. Slope of the regression line based on the actual surveillance data is in the order of 10^{-4} which justifies use of a mean model indicating no drift. Use of a regression model with a 95% confidence interval is more conservative. In the confidence interval calculation, there is an additional conservatism as discussed below:

   Predicted Confidence Interval X_i days

   = {Regression line at X_i days} $\pm$ {$t_{(1-\alpha, DF)}$ * Std Deviation of predicted value @ X_i days}

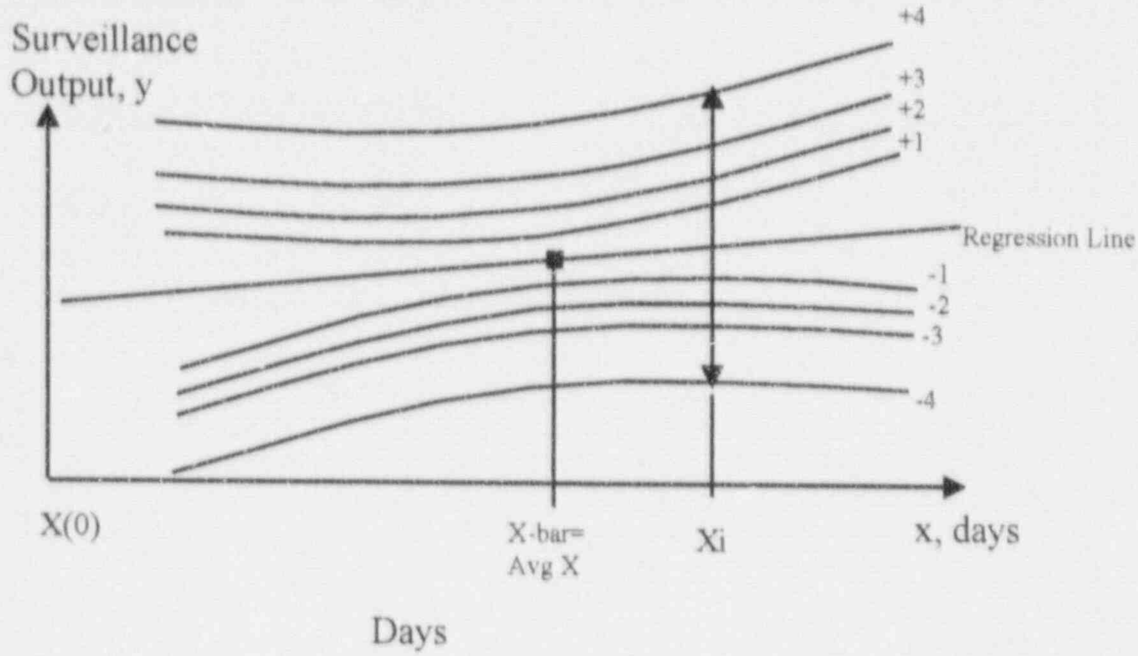
   = {$a + b^* X_i$ } $\pm$ {$t_{(0.95, DF)}$ * $[s^2(\hat{Y}_i)]^{1/2}$ } , where

$$s^2(\hat{Y}_i) = s^2(\hat{y})\{1 + \frac{1}{N} + \frac{(\bar{X} - X_i)^2}{\sum(X - \bar{X})^2}\} = s^2(\hat{y}) + s^2(\bar{y}) + s^2(b) * (\bar{X} - X_i)^2 ,$$

   where:

   $s^2(\hat{Y}_i)$ = Variance of the predicted value
   $s^2(\hat{y})$ = Variance of the estimate
   $s^2(\bar{y})$ = Variance of $\bar{y}$
   $s^2(b)$ = Variance of the slope, i.e., b

   Thus the variance of the predicted value is enlarged by the sum of: Variance of the estimate, Variance of $\bar{y}$ and Variance of the slope multiplied by the square of the deviation of the predicted time from the average value of X.



In the figure above,

± 1 = Variability around regression line due to standard deviation of the estimate

± 2 = Variability around regression line due to square root of {variance of the estimate + variance of $\bar{y}$}

± 3 = Variability around regression line due to square root of {variance of the estimate + variance of $\bar{y}$ + (variance of slope) x (square of the deviation from the $\bar{X}$ of time for which the prediction is made)}

± 4 = 95% Confidence Interval around regression line
= $t_{(95, DF)}$ x {± 3 from directly above}