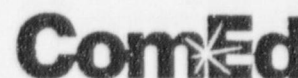


Commonwealth Edison Company
1000 Opos Place
Downers Grove, IL 60515-5704



April 30, 1999

John A. Grobe, Director
Division of Reactor Safety
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532-4351

Subject: Additional Information Related to Byron Station Overtime –
NRC Tracking No. 98-A-0165

References: (1) Letter from H. Brent Clayton (U.S. NRC) to O. D. Kingsley
(Commonwealth Edison Company) dated October 30, 1998
(2) Letter from K. L. Graesser (Commonwealth Edison Company) to
H. Brent Clayton (U.S. NRC) dated December 8, 1998
(3) Letter from K. L. Graesser (Commonwealth Edison Company) to
H. Brent Clayton (U.S. NRC) dated December 22, 1998
(4) Letter from John A. Grobe (U.S. NRC) to O. D. Kingsley
(Commonwealth Edison Company) dated March 29, 1999

Dear Mr. Grobe:

Pursuant to your request, we are providing you a copy of our evaluation of the matter described in Reference 4. As requested, this response is not being submitted on the station docket. As discussed in a teleconference between R. M. Krich, Commonwealth Edison (ComEd) Company, and S. Reynolds, NRC, on April 28, 1999, the submittal date for this evaluation was extended from April 28, 1999, to April 30, 1999. The evaluation was conducted independently by the ComEd Nuclear Generation Group (NGG) Regulatory Services organization. We have determined that the investigation was of sufficient depth and scope to address the issues identified in Reference 4. The attachment does not contain any personal privacy, proprietary, or safeguards information.

In Reference 1, the NRC requested that ComEd provide the results of an evaluation of overtime concerns at Byron Station. In References 2 and 3, we provided the results of our evaluation. In Reference 3, we concluded that the use of overtime at Byron Station was controlled in accordance with the administrative requirements and management expectations established to meet the overtime requirements of the Technical Specifications; overtime usage does not cross into the realm of routine; sufficient staffing has been and continues to be maintained to support the operational

9905250173 990513
PDR ADDCK 05000454
PDR

Received 5-4-99
9905250173
Common Edison Company

WPP

ATTN: 99-A-00347

(52)

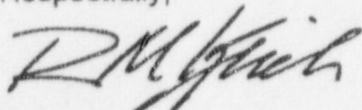
April 30, 1999
John A. Grobe
Page 2 of 2

requirements of the station; and overtime at Byron Station has been, and continues to be, controlled in a manner consistent with safe plant operations. In Reference 4, the NRC requested that we provide additional information to further clarify these conclusions.

In summary, and as detailed in the attachment, after additional review of the overtime issues, we have re-confirmed that the overtime controls specified in NRC Generic Letter 82-12, "Nuclear Power Plant Staff Working Hours," and required by Technical Specifications Section 5.2.2.d, are being properly implemented. In general, we have found that, on average, operations personnel do in fact work in excess of a 40-hour week during non-outage periods. Overtime use in the Byron Station Operations Department during non-outage periods has been averaging between one hour and eight hours per person per week during 1996, 1997, and 1998. We do not, however, consider this amount of overtime per week to constitute "routine heavy use of overtime" as specified in Generic Letter 82-12. However, we are continuing to assess the use of overtime at Byron Station as well as our other nuclear stations to determine if the existing controls need to be reinforced.

Please contact Mr. J. A. Bauer at (630) 663-7287 if you have any comments or questions regarding this matter.

Respectfully,



R. M. Krich
Vice President -- Regulatory Service

Attachment: Evaluation Report NRC -- Tracking No. 98-A-0165

Attachment

Evaluation

NRC Tracking No. 98-A-0165

I. INTRODUCTION

In a letter dated March 29, 1999, the U. S. Nuclear Regulatory Commission (NRC), Region III, requested the following information concerning the Commonwealth Edison (ComEd) Company Byron Station.

"Technical Specification 6.2.2.e states that the amount of overtime worked by facility staff members performing safety-related functions shall be limited in accordance with the overtime limits specified in Generic Letter (GL) 82-12. Generic Letter 82-12 states that the objective is to have operating personnel work a normal 8-hour day, 40 hour week during plant operation; however, during unusual circumstances, and on a temporary basis, additional limits for working overtime shall be followed. In addition, Generic Letter 82-12 states that deviations from those limits shall be authorized by plant management.

You concluded in your December 22, 1998, response that overtime was not used to compensate for inadequate personnel staffing, was controlled in a manner that ensured compliance with Technical Specifications and Byron Administrative Procedure (BAP) 100-7, "Overtime Guidelines for Personnel," and did not cross into the realm of routine. The conclusion was based on the overtime yearly average per person remaining steady since January 1995 and that the majority of overtime occurred during refuel outages. You also concluded that based upon a review of licensee event reports, root cause evaluations, and other independent reviews that overtime usage had not adversely impacted operation of the Byron Station.

However, information provided in your response, including 4300 approved deviations from overtime guidelines from January 1995 through June 1998 and a consistently large number of average yearly overtime hours by operations personnel from 1996 through October 1998, appear to support a different conclusion. In addition, NRC Inspection Reports 50-454/455-97012 (DRP) and 50-454/455-98005 (DRP) documented that licensed operators were normally working hours that exceeded the maximum overtime limits specified by your administrative procedure.

Please provide the following information:

1. With respect to the above information including numerical data provided in your earlier response and NRC inspection findings, explain why you do or do not consider the operations department overtime usage "routine and excessive."
2. Your earlier response focused on yearly averages for overtime. However, yearly averages could mask individuals or groups of individuals with much higher than average overtime usage and the related potential safety impact, especially when the overtime is congregated during outages as you stated in your response. Explain what actions you have taken to determine the extent

and safety impact of individuals with much higher that average overtime especially during peak usage times and your conclusions in this area.

3. In addition, please explain the roles of the Corrective Action Program and the Nuclear Oversight Organization had in evaluating the use of overtime for operations personnel and their roles in reaching the conclusion that the use of overtime was not routine or excessive."

II. EVALUATION DETAILS

The Nuclear Generating Group (NGG) Regulatory Services organization conducted an independent evaluation of the information requested in a NRC letter dated March 29, 1999. The results are provided in the following responses.

Request No. 1

"With respect to the above information including numerical data provided in your earlier response and NRC inspection findings, explain why you do or do not consider the operations department overtime usage "routine and excessive."

Response

In order to provide a basis as to whether we do or do not consider the Operations Department overtime usage "routine and excessive," a re-review of the Byron Station Operations Department overtime details for Senior Reactor Operators (SROs), Reactor Operators (ROs), and Non-Licensed Operators (NLOs), was performed for 1996, 1997, and 1998. The phrase "routine and excessive" overtime, used in Request No. 1, is assumed to be equivalent to the phrase "routine heavy use of overtime," used in Generic Letter 82-12, "Nuclear Power Plant Staff Working Hours."

The average amount of overtime was determined for the individuals in the positions of SRO, RO and NLO in the Byron Station Operations Department. Since this is an average, these figures do not mean that each person worked some overtime. These data are presented in the table below. The amount of overtime is given in average number of hours worked per person, and also expressed as a percentage above a normal 2080-hour work year. For example, if an SRO worked 100 hours of overtime in 1998, this would be listed in the table below as 5% (i.e., $100/2080 \approx 0.05$).

Table 1
Byron Station
Operations Personnel
Average Amount of Total Overtime Worked per Person per Year

Operations Group	Total Overtime 1996	Total Overtime 1997	Total Overtime 1998
SROs	119 hrs (6%)	342 hrs (16%)	320 hrs (15%)
ROs	446 hrs (21%)	611 hrs (29%)	548 hrs (26%)
NLOs	401 hrs (19%)	452 hrs (22%)	391 hrs (19%)

Many of the overtime hours worked are attributed to outage-related activities. In 1997, the peak year for overtime, there were a total of seven outages, i.e., six forced outages and one refueling outage, for a total of 103 days of outage time.

The amount of non-outage overtime worked in the Operations Department was then determined. Operations non-outage overtime hours were calculated by subtracting all overtime hours worked during outage periods from the total operations overtime hours. An average of Operations personnel non-outage overtime hours worked are given in Table 2 below. Again, these figures do not reflect that each operator worked overtime since these are average values.

Table 2
Byron Station
Operations Personnel
Average Amount of Non-outage Overtime Worked per Person per Year

Operations Group	Non-outage Overtime 1996	Non-outage Overtime 1997	Non-outage Overtime 1998
SROs	61 hrs (3%)	227 hrs (11%)	174 hrs (8%)
ROs	221 hrs (11%)	401 hrs (19%)	326 hrs (16%)
NLOs	185 hrs (9%)	308 hrs (15%)	240 hrs (12%)

Overtime use in the operations department during non-outage periods, as shown in the above table, has been averaging from 3% (i.e., approximately 1 hour per week per person for SROs in 1996) to 19% (i.e., approximately 8 hours per week per person for ROs in 1997). This average non-outage overtime reflects the need for individuals to work some amount of overtime due to a number of causes, including coverage for vacations and absences. Also, as discussed in response to Request No. 2 below, a review of overtime hours worked by individuals was conducted to ensure that routine and excessive use of overtime by individuals or groups was not masked by the average figures. Accordingly, we do not consider the range of overtime presented above as "routine heavy use of overtime" as specified in Generic Letter 82-12, "Nuclear Power Plant Staff Working Hours."

3644 overtime deviations were approved from January 1995 through June 1998. In our letter from K. L. Graesser (ComEd) to H. Brent Clayton (NRC), dated December 22, 1998, we indicated that 4300 overtime deviations were approved during this time period. Upon further review, this number was found to be in error, due to a tabulation mistake, and is actually 3644 as noted. A sample of these overtime deviations, from February 1998 through December 1998, was reviewed to determine the reasons for the overtime deviations and to identify which overtime guideline deviations were approved. 432 deviation forms were identified which addressed 790 different overtime deviations. Note that more than one overtime deviation can be documented on the same form. The deviation form will count two occurrences for an individual who exceeds the 72 hours over a seven day period guideline who may have also exceeded the 24 hour over a 48 hour period guideline during that same seven day period. Of the 432 overtime deviation forms approved, 328 (i.e., 76%) were outage-related. The remaining overtime deviation forms were related to activities such as non-safety related administrative activities (e.g., work planning and scheduling), safety-related administrative activities (e.g., review of surveillance tests and out-of-service documentation preparation), root cause investigations, security manning, and training.

The most prevalent overtime guideline deviation, i.e., greater than 72 hours in a seven day period, occurred during outages. The rest of the overtime guideline deviations were spread across the other guidelines, i.e., less than 8 hour break between work periods, working greater than 16 consecutive hours, working greater than 16 hours in a 24 hour period, and working greater than 24 hours in a 48 hour period.

Finally, a review of the Byron Station Operations Department personnel staffing during 1995, 1996, 1997, and 1998 was performed to determine if there were staffing reductions that may have impacted the amount of overtime worked. The personnel numbers are given below.

Table 3
Byron Station
Operations Department
Personnel Numbers

Operations Department Personnel Numbers			
1995	1996	1997	1998
152	166	166	172

As can be seen, Byron Station Operations Department staffing was increased by 20 individuals from 1995 to 1998.

NRC Inspection Report, 50-454/455-97012 dated August 22, 1997, and NRC Inspection Report 50-454/455-98005 dated March 16, 1998, documented the NRC's review of overtime issues at Byron Station. In the March 29, 1999, NRC letter, it was stated that these reports "documented that licensed operators were normally working hours that exceeded the maximum overtime limits specified by your [Byron's] administrative procedure." After reviewing these inspection reports, we could not validate this statement.

NRC Inspection Report 50-454/455-97012 stated, "The inspectors concluded that licensee management was aware of the amount of overtime worked in the operations department, controlled the overtime appropriately, and was working to reduce the number of hours required by hiring additional staff. Although a significant amount of overtime was worked from January through May 1997, there was no evidence that plant safety was compromised." This Inspection Report also stated, "The inspectors did not identify any violations of licensee or NRC requirements."

NRC Inspection Report 50-454/455-98005 stated in part that the inspectors "... reviewed the overtime hours for seven nuclear station operators (NSOs) and three senior reactor operators (SROs) for the period November 7, 1997, until February 2, 1998. The period, almost 12 weeks, was entirely an outage period for Unit 1." Inspection Report 50-454/455-98005 went on to state that, "The inspectors concluded that the nuclear station operators (NSOs) were working large amounts of hours just under the overtime guidelines for extended periods of time. The inspectors did not identify any significant deviation from the overtime guidelines. However, the inspectors concluded that generally, the 12 hour shifts worked by the NSOs caused large amounts of overtime hours and the 8 hour shifts caused long periods of work without a day off. Additionally, the 16 hour shifts caused excessive shift rotation. The inspectors concluded that the large amounts of hours worked by some NSOs and the extra shift

rotations caused by the 16 hour shifts were poor human factor practices." This Inspection Report also noted, "The overtime hours for the three SROs reviewed appeared well controlled."

We concur with the observations noted in Inspection Report 50-454/455-98005 regarding outage overtime. Given the high level of activity during outage periods, we would anticipate that many personnel, in all station departments, will continue to work a substantial amount of overtime during outage periods, as recognized in the guidance in Generic Letter 82-12. Limitations on overtime will continue to be controlled consistent with Byron Administrative Procedure (BAP) 100-7, "Overtime Guidelines For Personnel," which implements the requirements of Technical Specifications Section 5.2.2.d.

Based on the above analysis and discussion, we have concluded that, although the use of overtime at the Byron Station requires continuous management attention and oversight, the overall control of overtime at Byron Station has been carried out in accordance with the requirements in the Technical Specifications. Accordingly, our re-review of overtime data confirms our previous conclusion that the Operations Department overtime usage is not "routine and excessive."

Request No. 2

"Your earlier response focused on yearly averages for overtime. However, yearly averages could mask individuals or groups of individuals with much higher than average overtime usage and the related potential safety impact, especially when the overtime is congregated during outages as you stated in your response. Explain what actions you have taken to determine the extent and safety impact of individuals with much higher than average overtime especially during peak usage times and your conclusions in this area."

Response

Byron Administrative Procedure (BAP) 100-7, "Overtime Guidelines For Personnel," implements the overtime guidelines specified in Generic Letter 82-12." BAP 100-7 requires documented authorization for deviations from these guidelines on form BAP 100-7T1, "Overtime Deviation Authorization." As applicable, this form requires the supervisor to evaluate the employee's potential for reduced effectiveness during a face to face meeting as soon as practical but prior to exceeding the overtime guidelines. This form would be completed prior to an employee:

1. working with less than 8 hours rest between work periods; or
2. working greater than 16 consecutive hours; or
3. working greater than 16 hours in a 24 hour period; or
4. working greater than 24 hours in a 48 hour period; or
5. working greater than 72 hours in a 7 day period.

Unless an employee is specifically authorized to exceed one of the overtime guidelines, there is no specific action taken to evaluate and document an employee's fitness for duty due to potential fatigue. Therefore, an individual with much higher than the average overtime, would not receive any additional evaluation provided that individual remained within the overtime guidelines. However, it should be noted that all

employees are continuously observed in accordance with the requirements of the ComEd Fitness For Duty Program as defined in Corporate Nuclear Guideline No. 200, "ComEd Fitness For Duty Program." This guideline states that each individual employee has the responsibility of "reporting to their supervisor when any conditions exist which impairs their ability to safely perform their assigned duties." Also, supervisors are responsible for "familiarizing themselves with their employee's behavior patterns in order to enable the supervisor to recognize when an employee is exhibiting unusual or aberrant behavior." In addition, supervisors are responsible for "acting in a timely manner when a Fitness For Duty concern has been identified. If someone's fitness is questionable, the supervisor shall immediately remove the person from work activities." Therefore, at any time, if a supervisor observes that an employee is unfit to perform their work duties due to fatigue, the supervisor is obligated to remove that person from their assigned duties.

The specific concern in Issue No. 2 that "yearly averages could mask individuals or groups of individuals with much higher than average overtime usage and the related potential safety impact," is a valid issue and of concern to us. Table 4 shows the average overtime of SROs and ROs as compared to the highest individual for each work group.

Table 4
Byron Station
Operations Personnel
Average/Highest Amount of Total Overtime Worked per Person per Year

Operations Group	Total Overtime 1996	Total Overtime 1997	Total Overtime 1998
	Avg / Highest Individual	Avg / Highest Individual	Avg / Highest Individual
SROs	6% / 41%	16% / 48%	15% / 36%
ROs	21% / 34%	29% / 46%	26% / 37%

It is clear that there is a significant variance between the average amount of overtime worked by SROs and ROs as compared to the highest amount of overtime worked by a specific individual. Byron Station senior management will continue to ensure that all personnel either meet the overtime guidelines in BAP 100-7, or receive the appropriate management pre-approval with the corresponding face to face evaluation prior to working the overtime.

A Byron Station overtime self-assessment was recently completed on April 26, 1999. This self-assessment evaluated operational events from June 1998 through present to determine if there was any link between the events and excessive operator overtime. The self-assessment concluded that there was no direct or indirect link between any operational event and operator fatigue.

Request No. 3

"In addition, please explain the roles of the Corrective Action Program and the Nuclear Oversight Organization had in evaluating the use of overtime for operations personnel and their roles in reaching the conclusion that the use of overtime was not routine or excessive."

Response

Corrective Action Program Role

Root Cause Evaluations that addressed human performance errors, as well as other independent reviews of station performance, were reviewed to determine what effect the use of overtime may have had on plant operations. It was the conclusion of the Nuclear Oversight evaluators that overtime usage had not adversely impacted operation of Byron Station.

Nuclear Oversight Organization Role

After receiving the October 30, 1998 NRC letter, the corporate Nuclear Oversight Organization conducted an evaluation of overtime usage at Byron Station. The Nuclear Oversight Organization focused specifically on the use of overtime by SROs, ROs, and NLOs at Byron Station.

Specifically, the Nuclear Oversight Organization performed the following activities.

1. Nuclear Oversight personnel met with ComEd Corporate Security and Regulatory Services personnel to discuss the nature and scope of the NRC requested evaluation.
2. Nuclear Oversight personnel reviewed a variety of information and data regarding plant performance, human performance errors, overtime usage, and assessments of overtime usage at Byron Station.

As a result of their review, the Nuclear Oversight Organization reached the following conclusions that were provided in our December 22, 1998 letter.

1. Overtime usage at Byron Station remained relatively constant since the January 1995 NRC violation regarding the control of overtime. Since the overall average amount of overtime had not varied greatly over the three year period in question (i.e., 1996, 1997, and 1998); and the total amount of overtime in the Operations Department for this three period averaged 373 hours per person per year (i.e., approximately 7.5 hours per week per person), it was concluded that the use of overtime was not excessive.
2. Overtime usage had not adversely impacted the operations of Byron Station based on the fact that no operational events had been identified that were associated with operator fatigue.
3. Overtime usage at Byron Station had not crossed into the realm of routine as defined by Byron Administrative Procedure 100-7, "Overtime Guidelines for Personnel."

This conclusion was reached based on a review of the Operations Department staffing in order to determine whether overtime was being used routinely to compensate for inadequate staffing. It was the conclusion of the Nuclear Oversight evaluators that overtime was not being used to compensate for inadequate staffing.

4. The corrective actions taken in response to the violation cited in NRC Inspection Report 50-454/455-94025 had been effective in reducing, but not totally eliminating, the occurrences of "after the fact" overtime approval.
5. While not a problem of routine or excessive use, overtime was a recognized concern across the Nuclear Generation Group as the use of overtime pointed towards inefficiencies in the processes used to accomplish daily work activities.

III. CONCLUSION

1. We have re-confirmed that the control of overtime specified in Generic Letter 82-12 is being properly implemented. We do acknowledge that, in general, Byron Station operations personnel do in fact work overtime during non-outage periods. Overtime use in the Operations Department during non-outage periods has been averaging approximately one hour to eight hours per person per week in 1996, 1997, and 1998. We do not, however, consider this to constitute "routine heavy use of overtime" as specified in Generic Letter 82-12.
2. It is recognized that there is a significant variance between the average amount of overtime worked by SROs and ROs as compared to the highest amount of overtime worked by a specific individual. Anyone working in excess of the guidelines of Byron Administrative Procedure (BAP) 100-7, "Overtime Guidelines For Personnel," will receive management authorization prior to performing the work. Further, each employee being approved for an overtime guideline deviation will be evaluated as required by and documented on form BAP 100-7T1. This form requires the supervisor to evaluate the employee's potential for reduced effectiveness during a face to face meeting as soon as practical but prior to exceeding the overtime guidelines.

A Byron Station overtime self-assessment was recently completed on April 26, 1999. The self-assessment concluded that there was no direct or indirect link between any operational event and operator fatigue.

3. Root Cause Evaluations that addressed human performance errors, as well as other independent reviews of station performance, were reviewed to determine what effect the use of overtime may have had on plant operations. It was the conclusion of the Nuclear Oversight evaluators that overtime usage had not adversely impacted operation of Byron Station.

The Nuclear Oversight organization conducted an evaluation of overtime usage at Byron Station. The Nuclear Oversight organization focused specifically on the use of overtime by SROs, ROs and NLOs at Byron Station. The Nuclear Oversight organization concluded that overtime use was not excessive; overtime usage had not adversely impacted the operations of Byron Station due to operator fatigue; and overtime usage at Byron Station had not crossed into the realm of routine.