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AUTH.NAME AUTHOR AFFILIATION
MUELLER, J.H. Niagara Mohawk Power Corp.
RECIP.NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Responds to NRC 971212 ltr re violations noted in OI rept 1-96-015 on 960513. Corrective actions: individual contractors responsible for or aware of corruption of computer code still working for NMP were terminated.

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NIAGARA MOHAWK

GENERATION
BUSINESS GROUP

NINE MILE POINT NUCLEAR STATION/LAKE ROAD, P.O. BOX 63, LYCOMING, NEW YORK 13093

January 27, 1998
NMP1L 1282

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

RE: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Nine Mile Point Unit 2
Docket No. 50-410
NPF-69

Subject: *Response to An Apparent Violation in Office of Investigations Report
No. 1-96-015*

Gentlemen:

On December 12, 1997, Mr. Charles W. Hehl, Director, Division of Reactor Projects, Region I, NRC, wrote to Mr. B. Ralph Sylvia, Executive Vice President and Chief Nuclear Officer, Niagara Mohawk Power Corporation (NMPC) regarding an investigation initiated by the NRC Region I, Office of Investigations (OI) on May 13, 1996. The purpose of the investigation was to determine who altered the Fitness-for-Duty (FFD) computer code which enabled certain individuals to be excluded from the random testing program at Nine Mile Point. A synopsis of OI Report No. 1-96-015 was enclosed.

Mr. Hehl's December 12, 1997 letter requested that NMPC either (1) respond to the apparent violation within 30 days or (2) request a predecisional enforcement conference. On January 12, 1998, in a letter from Mr. B. R. Sylvia, Chief Nuclear Officer, NMPC stated our intention to respond to the violation by January 30, 1998. The purpose of this letter is to provide NMPC's response.

The subject OI report resulted from the notification by NMPC in May 1996 of its discovery of a corrupted computer code which allowed the exclusion of certain individuals from random FFD screening. NMPC had discovered this event, reported it to the NRC, and immediately initiated an exhaustive investigation of the matter, including identification of the root cause. As a result of its investigation, NMPC took extensive corrective actions to address the deficiencies in its program and reduce the possibility of this type of event recurring at the Nine Mile Point facility.

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The NRC's Office of Investigations was kept apprised on an ongoing basis as to the progress and results of NMPC's investigation. NMPC conducted numerous on-the-record interviews to determine the cause of the event and used innovative investigative techniques which permitted the identification of the involved individuals and led to their on-the-record admission of involvement. Without NMPC's comprehensive investigation, including review of computer records dating back to 1989, the perpetrators could have remained unidentified.

Because of the nature of this event involving the collusion of two individuals against the interests of NMPC, the discovery of it by NMPC, the self-initiated comprehensive investigation, and the extensiveness of its corrective actions, NMPC submits that enforcement action against it should be withheld. It was only through the self-questioning inquisitiveness and persistence of individuals at NMPC that this matter was uncovered and pursued to its definitive conclusion.

As further discussed in the attachment hereto, the licensee's corrective actions were particularly comprehensive and included independent, outside expert review of the affected FFD program as well as other programs. For example, NMPC's corrective actions included subjecting individuals involved with the FFD computer programs to FFD testing. In addition, as a result of the independent review, staff was added with specific responsibility for system configuration control, software QA, and computer system security. For these additional reasons, enforcement action should be withheld against NMPC.

In any event, no civil penalty is warranted. Given the facts, the comprehensive nature of NMPC's investigation, and corrective actions undertaken, such civil penalty would serve no purpose. Indeed, a civil penalty might be counterproductive, sending the wrong message to NMPC's staff concerning problem resolution.

Sincerely,



John H. Mueller
Chief Nuclear Officer

JHM/GJG/lmc
Attachment

xc: Mr. H. J. Miller, Regional Administrator, Region I
Mr. A. W. Dromerick, Acting Director, Project Directorate I-1, NRR
Mr. B. S. Norris, Senior Resident Inspector
Mr. D. S. Hood, Senior Project Manager, NRR
Records Management



UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
Niagara Mohawk Power Corporation) Docket No. 50-220
) Docket No. 50-410
Nine Mile Point Nuclear Station Unit No. 1 and No. 2)

AFFIDAVIT

John H. Mueller, being duly sworn, states that he is Chief Nuclear Officer of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information, and belief.

NIAGARA MOHAWK POWER CORPORATION

By John H. Mueller
John H. Mueller
Chief Nuclear Officer

Subscribed and sworn to before me
this 27 day of January 1998.

Beverly W. Ripka
NOTARY PUBLIC

BEVERLY W. RIPKA
Notary Public State of New York
Commission No. 4644879
Commission Exp. Mar. 31, 1998
2/27/98



**NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT UNIT 1 AND UNIT 2
DOCKET NO. 50-220/50-410
DPR-63/NPF-69**

**RESPONSE TO AN APPARENT VIOLATION
IN OFFICE OF INVESTIGATIONS REPORT NO. 1-96-015**

APPARENT VIOLATION

Based on the evidence developed during the investigation and review of evidence in Niagara Mohawk Power Corporation's (NMPC) investigative report, issued on August 29, 1996 and forwarded to OI on September 10, 1996, OI concluded that two contractor computer programmers intentionally altered the FFD computer program to ensure that certain individuals (including themselves) would be excluded from random FFD screening. This is an apparent violation of Title 10 Code of Federal Regulations (CFR) Section 26.24, which requires that individuals be tested in a statistically random and unpredictable manner. This apparent violation is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600.

I. THE REASON FOR THE APPARENT VIOLATION

In April 1996, Niagara Mohawk Power Corporation (NMPC) self identified an anomaly in the daily list of individuals selected for random testing. Aggressive followup of this discovery by NMPC's Fitness-for-Duty (FFD) Staff and computer group resulted in a determination that the random selection process for drug and alcohol testing, which is a requirement of Nuclear Regulatory Commission (NRC) regulations and NMPC's FFD program, had been compromised.

Shortly thereafter, NMPC senior management appointed a Task Force to investigate this matter. The Task Force consisted of a multi-disciplinary group of individuals under a charter approved by NMPC management. The charter required the Task Force to determine the facts surrounding the creation and implementation of the unauthorized computer code and determine the individuals who were involved. The Task Force was charged with the identification of any personnel, programmatic or generic issues developed from the facts learned in the course of the investigation. The investigation consisted of a detailed review and evaluation of relevant computer records and interviews with individuals who might have information. A total of 23 individuals were interviewed, some on a number of occasions. An exhaustive search of computer records and archival material was included as part of the investigation. In addition, a formal root cause evaluation was also performed and extensive corrective actions recommended. A copy of the Task Force's detailed investigation report was shared with the NRC's Office of Investigation (OI).



The Task Force concluded that two contract computer programmers, acting in concert, planned the process to eliminate certain individuals from inclusion in the FFD random selection process, made the necessary modifications to the computer code, and moved the corrupted code into production so that it would be routinely utilized. The planned activities were carried out with the intent to exclude the two programmers and several other individuals (unbeknownst to them) from the FFD random selection process, in a manner to conceal the change, and to make detection of the individuals responsible for the corruption difficult if the non-randomness were detected.

While the initial motivation for changing the computer code is unclear, the Task Force determined that the purpose and effect was to remove the programmers' names from the random testing pool in order to allow them to use illegal drugs. The deterrent effect of the random testing process was lost for only one individual; the other computer programmer did not have unescorted access. There is no evidence that any of the other individuals who were removed from the random selection pool were aware of their removal. Thus, the deterrent effect of the random testing potential was not lost for these individuals. There was also no evidence that the two involved individuals had been solicited or had received payment for excluding names from the pool. Of the individuals who were tested once the issue was discovered, only the computer programmer still employed at the site (who did not have unescorted access) tested positive. The other computer programmer who was no longer working at the site could not be tested.

The Task Force examined whether there were opportunities to have discovered the tampering prior to April 29, 1996, the date that NMPC identified the anomaly. While in theory there may have been several opportunities to have caught the corruption of the records, the Task Force determined that it was not surprising that it was not identified, since the programmers intentionally hid the corruption and covered their paths and because of the informal processes associated with development of the software. Indeed, it is a strength that the issue was discovered and pursued in April 1996. The checks done during the evolution of the FFD random selection computer programs to assure that the modifications made did not affect the random selection process were determined to have been reasonable in the circumstances. The culpable computer programmer having unescorted access had completed NMPC's badging process and thus was aware of the requirements. It was also clear from their testimony that both individuals involved were familiar with NMPC's requirements for FFD.

Aside from the two individuals directly involved, there was no direct evidence that any other individual participated in the alteration of the computer code. The Task Force concluded that no others were aware of the matter before the fact and only one of the programmers' business partners was made aware of the removal of individuals from the FFD random selection process after the fact prior to the identification by NMPC.

After the information-gathering phase of the investigation, in order to assure the development of comprehensive and effective corrective actions to prevent similar problems from arising in the future, a systematic root cause analysis was performed. Evidence clearly indicated that intentional wrongdoing was the cause of the event. However, NMPC considered it important



to understand what barriers should have or could have prevented this event. To identify other contributing factors, the Human Performance Evaluation System (HPES) was selected as the methodology of choice for the root cause analysis. The HPES methodology provides techniques to identify causal factors and potential contributors to human performance problems.

After analyzing the situation in detail, a root cause and three contributing causes were identified by the analysis that, if addressed, would help reduce the likelihood of recurrence of the event. The four causes are:

1. Willful misconduct. (Root cause)
2. Less than adequate method of software validation and technical review.
3. Less than adequate management understanding of and oversight for software development.
4. Less than adequate management monitoring of activities which resulted in problems not being identified.

II. THE CORRECTIVE ACTIONS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

The individual contractors responsible for or aware of the corruption of the computer code still working for NMPC were terminated and appropriate security background information for the involved individuals was updated. All contracts that the two computer programmers' companies had with NMPC were terminated. These companies will not be considered for future contracts with the Nuclear Division. Additionally, the Nuclear Division will not enter into any direct contracts or employment relationships with the individuals involved. Moreover, the results of the investigation were shared, in their entirety, with the NRC for its use.

The FFD computer source code has been corrected and verified to include all appropriate personnel. A number of other analyses were performed to validate the integrity of the FFD program. Records were analyzed to ensure that any long-term employees and contractors presently badged had been tested since the inception of the FFD random testing program. It was determined that only one long-term employee presently badged had not been tested. This was determined to be well within the probabilistic norms given the sample size and population. Therefore, it was determined that the random testing process was otherwise working properly.



III. THE CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

As a result of its extensive evaluation and comprehensive root cause evaluation, NMPC has taken a number of steps to avoid further violations similar to the one discussed above. As discussed below, a number of these programs are ongoing.

In 1995, even prior to discovery of this issue, NMPC had recognized that its organization needed augmentation to provide a dedicated branch manager and program managers with specialized training in computers, software and quality control in order to provide improved management oversight. These additional management personnel had been brought in and were in the process of evaluating programs and making changes in the computer group when this event was discovered. These additional management personnel were deeply involved in investigating this incident and instrumental in tracking down the computer records which led to the identification of the individuals involved. As a further corrective action, a project management position was created in 1997, and supporting staff allocated, with the responsibility for software configuration control, software quality assurance, and computer system security.

Additional administrative software control has been placed into effect since the corruption occurred. This includes a "never alone" approach when certain computer safeguards, such as normal privilege and access controls, must be bypassed for troubleshooting of computer applications by computer programmers. All "bypass" privileges have been revoked from the programmers. When there is a need to use the "bypass" privilege for software troubleshooting or maintenance, it is granted on a temporary basis by the System Administrators, after management approval. The use of such bypass procedures is now only allowed under the contemporaneous review of a second equally knowledgeable person.

A configuration management procedure has been implemented that provides separation of roles in the software development and release process. In accordance with this procedure, a single "librarian" position has been established with responsibility for controlling source code and software moves to production. This assures that a controlled copy of computer software exists and is protected from unauthorized manipulation. Programmers cannot access the controlled copy for modification and must request a working copy from the librarian when software modifications are necessary. After modification, programmers are not permitted to move programs into production themselves. A Version Description Document, with appropriate management review and signatures, is required before the System Administrator installs the modified software in the production environment. After the software is accepted for use, the librarian updates the controlled software and performs a final check that all documentation is complete.



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All Information Management software developers or other personnel with access to the FFD and other software codes have been placed in the FFD random selection program. Software developers directly involved in activities affecting the FFD software code have been placed under the FFD random selection program at twice the frequency of the general population.

The Information Management Branch Manager has met with his staff to explain the significance of this event and its relationship to the use of quality controls, procedure compliance, and performance expectations in the conduct of department business. The department procedures are now periodically reviewed in regular staff meetings, most recently in the third quarter of 1997. These include the procedures for development and testing of software, documentation requirements, configuration management, and release to production.

An outside consultant has conducted an independent review of corrective actions associated with this event to independently verify that quality software controls necessary for a reliable FFD program are in place and that the present computer environment in which the FFD program operates is secure and controlled. Actions to address the findings of this independent review have been taken, or are planned, to assure the continuing integrity of computer programs.

IV. THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance with Commission regulations was achieved on April 29, 1996, when the appropriate uncorrupted code was placed in production and was demonstrated that individuals from the pool would be tested in a statistically random manner.



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