

AEOD TECHNICAL REVIEW REPORT\*

UNIT: E. I. Hatch Unit 2  
DOCKET NO.: 50-366  
LICENSEE: Georgia Power Company  
NSSS/AE: GE/Southern Company and Bechtel

TR REPORT NO. AEOD/T340  
DATE: December 2, 1983  
EVALUATOR/CONTACT: TRWolf

Subject: EVALUATION OF A CONTROL ROD MISMANIPULATION EVENT AT HATCH  
UNIT 2

Event Date: July 14, 1983

SUMMARY

As documented in Licensee Event Report 83-042, on July 14, 1983, a control rod mismanipulation event occurred at Hatch Unit 2. Upon investigation, it has been determined that this event resulted primarily from an operations personnel deficiency. However, the severity of this deficiency does not appear to be significant. In addition, it does not appear to indicate a pervasive deficiency in the management of this unit. The corrective actions taken to prevent recurrence of such an event also appear to be adequate. Consequently, no additional AEOD/ROAB actions on this event are required.

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\* This document supports ongoing AEOD and NRC activities and does not represent the position or requirements of the responsible NRC program office.

## DISCUSSION

On July 14, 1983, personnel at Georgia Power Company's Hatch Nuclear Plant Unit 2 were attempting to return the plant to power after a refueling outage. At about 25% power, problems developed in maintaining condenser vacuum via the steam jet air ejectors. Attempting to maintain the reactor critical, the operators unloaded and tripped the turbine and began normal rapid control rod insertion while maintaining reactor vessel inventory via the reactor feed pumps. The ultimate goal of these maneuvers was to reach a power level consistent with the capacity of the condenser mechanical vacuum pumps without a reactor scram while performing troubleshooting of the vacuum decrease.

During the power reduction, as allowed by Hatch 2 technical specifications, the rod worth minimizer was bypassed but the rod sequence control system was operational. When the operators reached a point in the power reduction where the outer low worth peripheral rods were being inserted, they recognized that vacuum decrease was outpacing power reduction. In a quickly called brief conference involving approximately seven people; including the reactor operators, shift technical advisor and operations supervisor, a method was suggested by the shift technical advisor that involved manually scrambling sufficient rods to reach the desired power level. This method was agreed upon after a brief check of the technical specifications was made and it was concluded that the proposed method did not appear to violate any of the scanned technical specification limitations.

The procedure agreed upon consisted of reactor operators monitoring control rod movement on the main control panel while other licensed operators manually scrambled rods from the reactor scram timing test panel. This panel is a control room back panel which is isolated from the view of the operators at the main control panels. The rod insertion pattern to be followed was the same utilized in a normal shutdown.

Normally, the rod sequence control system (RSCS) prevents any abnormal rod movement even with the rod worth minimizer bypassed. To accomplish this, the RSCS utilizes the rod settling function of the reactor manual control system as its prime input for indicating rod movement. Scramming rods via the test panel does not utilize the normal rod settling function. Thus, the RSCS was effectively bypassed when utilizing this procedure.

Scramming rods following the agreed upon procedure began and continued until approximately 40 rods had been inserted. At this point it was determined that one rod had not moved to its desired position. Upon discovery of this movement abnormality, the operators at the main control panel initiated a full reactor control rod scram as required by normal operational procedures.

An NRC resident inspector happened to be in the control room while this sequence of occurrences was evolving. Recognizing that an off-normal procedure was being utilized, the inspector questioned the use of the procedure and brought the situation to the attention of upper plant management. Realizing that there existed a potentially serious violation of plant operational procedures, guidelines and management philosophy, upper management immediately relieved all involved personnel of their control room duties. These actions terminated this basic rod movement event. (See Refs. 1 and 2.)

## FINDINGS

### Corrective Actions

Subsequent to this event, appropriate procedures, orders, and training programs were revised or developed by Georgia Power Company. All personnel affected by these changes were required to attend meetings and training sessions which detailed these items. The people directly involved in the incident were not permitted to resume their normal duties until they completed these meetings and training sessions.

### Analysis and Evaluation

The rod sequence control system is an safety-related system for which some credit is taken in the generic licensing analysis of a control rod drop accident. (See Ref. 3.) In this instance, with the RSCS effectively bypassed because of its inherent design, a condition did exist which placed the plant in a condition outside the generic analysis bounds.

Based on engineering judgment and the known factors of this event, it likely can be shown by a detailed analysis that the bounding technical specification limit of 280 cal/gm would not be exceeded to any significant degree, if at all, even had a control rod drop accident occurred during this sequence of actions. Consequently, the results of such a combination of events would not appear to exceed the overall safety analysis findings for the analyzed control rod drop accident.

The actions of the operating and management personnel directly involved in this event do show deficiencies in management controls with the primary fault being one of not following a formally preapproved procedure. Until the decision was made to scram individual rods, normal procedures were being followed. The decision to scram individual rods and the governing methods to be utilized were based, in part, upon a conclusion that no technical specifications would be violated.

But such operations without formal preapproval of a written procedure by the proper review groups is permitted by the technical specifications only if the procedure followed does not alter the intent of the original procedure (see T.S. 6.8.3 for Hatch Unit 2). In this case, while operation of the control rods was being conducted in an agreed upon and controlled manner, the procedure utilized a new, previously untried, undocumented and unapproved method for rapid power reduction and use of the scram test panel function in a manner not described by procedure. As soon as a rod was identified to be operating abnormally, however, normal procedures were followed and the reactor was scrammed. In addition, upon being informed of potential operational abnormalities, higher management took immediate action to halt operations related to this event, to replace the operations personnel involved with this event, and to correct all discrepancies and retrain all personnel.

### Actions Being Taken By Others

This Hatch event is indicative of the problem of control rod mismanipulation. The NRC is sufficiently concerned by this topic that IE is preparing a generic information notice covering recent mismanipulation events.

Region II believes that this particular event is of sufficient significance to recommend that escalated enforcement action be taken. Additionally, as conveyed via a memorandum to AEOD (Ref. 4), Region II believes that this particular event is of such a significance as to recommend that it be classified as an abnormal occurrence. Their stated reasons for these recommendations are that this event represented a major degradation of essential safety-related equipment and that it demonstrated a major deficiency in management controls.

#### CONCLUSIONS

This event, at best, indicates a minor potential for exceeding previously analyzed and predicted safety consequences for a control rod drop accident. Additionally, some management problems akin to errors in judgment of some operating personnel were apparent. The fuel damage potential and management deficiencies, however, do not seem to indicate, respectively, either major equipment degradation or pervasive major management weakness. Additionally, the licensee's corrective actions appear to be sufficient to address and correct the problems discovered during this event.

The information notice to be issued by IE should be adequate to cover any AEOD concerns pertinent to this event. Since no major degradation of essential safety-related equipment or major deficiencies in design or management controls were demonstrated it is concluded that this event by itself does not meet the abnormal occurrence classification criteria.

As result of these items, it is further concluded that additional AEOD/ROAB review is not necessary at this time concerning this event or topic.

#### REFERENCES

1. Licensee Event Report 83-042, Hatch Unit 2, Docket 50-366.
2. Personal conversations with P. Holmes-Ray, Resident Inspector, Hatch Units 1 and 2.
3. General Electric Licensing Topical Report, "Generic Reload Fuel Application," NEDO-24011-A, September 1978.
4. Memorandum from Martin to Heltemes, "Potential Abnormal Occurrence-Hatch Unit 2," August 18, 1983.