

I GENERAL

During the SALP-1 appraisal period the licensee has developed and implemented a formal program specifically designed to improve the regulatory performance. These included staffing and organizational changes, quality assurance program development, and the identification and resolution of problems. Incremental resumption of safety-related construction, subject to the approval of the NRC, commenced subsequent to the evaluation period as described below.

The Director of IE authorized the following activities:

- PSIs resumption of receipt inspection. 07-07-80
- PSIs contractors, Cherne Contracting Corp. (CCC) and Commonwealth-Lord J. V. (CLJV) to resume receipt inspection. 11-13-80
- CCC and CLJV to resume mechanical, piping and electrical work. 12-05-80
- Resumption of all safety-related work including concrete placement. 03-27-81

The Order remains in place.

II SPECIFIC

A. CONTENTION: "The licensee's activities prior to and during the early part of the evaluation period displayed evidence of Project Engineering, Quality Assurance, and Construction Management weaknesses."

1. Basis

During inspections conducted in April 3-6 and April 30-May 3, 1979, problems were identified relative to the placement and repair of concrete. A Management meeting with PSI was held on May 15, 1979, to discuss these findings. On June 12, 1979, the NRC received information that a former worker of the Marble Hill site had alleged improper repairs of honeycomb areas in concrete. The allegations were contained in a sworn statements submitted to the office of Nuclear Reactor Regulations (NRR) through an attorney representing an Indiana intervener group. Subsequently, Region III received a copy and initiated an investigation on June-22, 1979.

IE Inspection Report
No. 50-546 and
547/79-03, 79-04,
79-05, 79-08

On June 26, 1979, a second meeting was held with PSI officials to discuss the findings of the investigation at that point and the fact that the deficient repairs of concrete had been identified. As a result of this meeting PSI agreed to stop concrete activities for safety related structures, perform non-destructive examinations of various concrete structures, identify and evaluate repaired areas for adequacy and review their entire program for concrete activities onsite. An Immediate Action Letter (IAL) dated June 27, 1979, was issued confirming this agreement.

IAL 06-27-79

On June 27-29 and July 2-7, 1979, inspection was conducted relative to Items 1, 2, 3, 4 and 5 of the IAL. Based on the results of this inspection, Region III concurred in the resumption of concrete placement for safety related structures. One item of noncompliance was identified with regard to failure to assure purchased services conformed to procurement documents.

IE Inspection
Report No. 79-07

Initial results of the inspection conducted during the period of July 9 through July 27, 1979 lead to a site management meeting on July 20, 1979, and an understanding that the licensee would again stop concrete activities for safety related structures. A second Immediate Action Letter (IAL) dated July 23, 1979, was issued documenting this understanding. Five items of noncompliance were identified with regard to: inadequate QC inspection, six examples; inadequate specification of quality requirements, four examples; lack of or failure to follow procedures, four examples; failure to take effective corrective actions, three examples; and lack of adequate training.

IAL 07-23-79, IE
Inspection Report
No. 79-09

On July 25, 1979, Region III learned that a team from the National Board of Boiler and Pressure Vessel Inspectors had conducted an inspection on June 12-14, 1979, at the Marble Hill site during which numerous items of noncompliance with the ASME Code were found. As of the result of the National Board's inspection and the Region III findings a comprehensive team inspection was conducted during the

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period of July 26-28, July 31-August 3, 1979. The purpose of this inspection was to identify the underlying causes leading to the concrete and ASME Code Deficiencies and to determine if they were symptomatic of problems in other areas. The results of this inspection indicated that problems and the Quality Assurance/Quality Control (QA/QC) program in concrete construction activities extended to other construction areas as well. Four items of noncompliance were identified: failure to sufficiently implement the QA program; failure of established measures to assure the conditions adverse quality were promptly identified and corrected; failure to assure the special processes, including welding...are controlled...by...qualified procedures; and failure to properly control materials...which do not conform to requirements.

2. NRC Actions

. NRC actions following the identification of problems relative to placement and repair of concrete and prior to this SALP evaluation period are described in Paragraph 1, Basis.

. Region III issued a second IAL Letter 07-23-79 which confirmed that PSI would again stop concrete activities for safety-related structures.

. As a result of findings prior to this evaluation period Region III conducted a comprehensive team inspection during the period of July 26-28, July 31-August 3, 1979. The results of this team inspection are as follows. IE inspection Report No. 79-11

NRC concluded that effective implementation of the documented Marble Hill Quality Assurance program for all safety-related construction had not occurred. PSI and their contractors had not sufficiently complied with its fundamental commitment to conduct all of these construction activities in accordance with the requirements of 10 CFR 50, Appendix B, and other required codes and standards.

The principal causes of these adverse conditions and noncompliances were:
(1) insufficient management and manage-

ment support, (2) insufficient number of personnel, (3) insufficient technical qualification of personnel, and (4) insufficiently experienced personnel.

The secondary but significant contributing causes were: (1) failure to adequately identify PSI's task or mission regarding the verification of the adequacy of work done by contractors, (2) failure to devise a system to comprehensively account for and evaluate all identified nonconformances occurring on the site, (3) failure to recognize the generic implications of recurring deficiencies, (4) failure to recognize that fixed price construction contracts, while not inherently defective, are likely to place heavier demands on the licensee verification of construction adequacy, (5) failure to delegate sufficient authority to QC inspectors and their managers regarding stop-work authority, (6) failure to institute employment (manning) and compensation practices which would attract adequately qualified and experienced job applicants, (7) failure of corporate management to recognize the need to be more responsive to site QA/QC manning request, (8) failure to be responsive to and recognize the importance and authority of construction code enforcement bodies, and (9) failure to recognize that the use and attempted upgrading of laborers to supplement unavailable journeyman craftsmen requires more comprehensive training and oversight.

The above findings by their nature involved all safety-related construction activity by PSI and their contractors at the site. Without extensive corrective actions, there was little likelihood that continued construction could be accomplished with adequate assurance that quality requirements would be met.

At the request of PSI, representatives of Region III and PSI management met again on August 1, 1979, to discuss PSI's planned actions to correct the programmatic

IE Inspection Report
No. 79-14, and
Order 8-15-79

QA/QC problems at the Marble Hill site. Meeting included a discussion of the desirability of stopping all safety-related construction activities at the Marble Hill site until such time as the licensee demonstrates that it has an effective QA program acceptable to the NRC. The licensee issued a stopwork order on August 7, 1979, for all safety-related construction. An order confirming this suspension of construction was issued on August 15, 1979, by the NRC. A meeting was held with PSI management in the Region III offices on August 15, 1979, to discuss the conditions of the confirming order.

Numerous management conferences were held during this evaluation period after the issuance of the order. These conferences occurred on the following dates: 11-08-79, 12-10-79, 01-21-80, 02-20-80, 02-27-80, 03-31-80, 04-30-80, and 06-27-80. On 03-25-80 a public meeting was held in Madison, Indiana to discuss the licensee's response to the August 15, 1979 "Order Confirming Suspension of Construction."

IE Inspection Reports
No. 79-24, 79-28,
80-05, 80-07, 80-12,
80-17, 80-24.

Upon issuance of the order an augmented inspection program to verify compliance with the order was initiated.

08-15-79

A full-time senior resident inspector was assigned to the Marble Hill site.

12-03-79

A formal briefing on resumption of construction of Marble Hill was presented to the NRC Commissioners.

05-07-80

The Director of IE issued a document titled "Graduated Rescission to the August 15, 1979 Order." This document prescribed a graduated rescission process for implementation at Marble Hill to assure that the licensee's corrective actions were implemented and effective. Construction activities at the Marble Hill site resumed in a graduated, step-wise fashion with review by the NRC at appropriate stages.

05-15-80

3. Licensee Corrective Actions

Licensee Corrective Actions relative to each Immediate Action Letter (IAL) are documented in the inspection reports referenced in Paragraph 1, Basis. The corrective actions relative to inspection findings that resulted in the issuance of the August 15, 1979 Order and those items identified in the Order are documented in virtually all of the inspection reports issued since that time and during this SALP evaluation period. In addition the following documents which are available in the local Public Document Room describe the licensees corrective actions:

- . Report SL-3753, Evaluation of Inplace Concrete, Marble Hill Nuclear Generating Station Units 1 and 2, prepared for PSI by Sargent and Lundy Engineers, November 20, 1979. Revision 1, November 21, 1980.
- . February 28, 1980, DISCRIPTION OF LICENSEE ACTIVITIES ADDRESSING ORDER CONFIRMING SUSPENSION OF CONSTRUCTION.
- . April 28, 1980, CONSOLIDATED DESCRIPTION OF QUALITY ASSURANCE PROGRAM.
- . September 12, 1980, CONSTRUCTION AND MATERIAL VERIFICATION PROGRAM, FINAL REPORT. REPORT REVISED May 15, 1981.

B. Contention

"The licensee had not sufficiently implemented Quality Assurance and Management Controls."

1. Basis

Major examples are the same as identified in Contention A.

2. NRC Actions

Major examples are the same as identified in Contention A.

3. Licensee Corrective Actions

Major examples are the same as identified in Contention A.

C. Contention

"There were ineffective controls over civil and mechanical construction."

1. Basis

Major examples are the same as identified in Contention A.

2. NRC Actions

Major examples are the same as identified in Contention A.

3. Licensee Corrective Actions

Major examples are the same as identified in Contention A.

D. Contention

"There were ineffective controls over stored equipment and components."

1. Basis

During an inspection on November 14-20, 1979, one item of noncompliance identified relative to failure to provide proper storage and maintenance of material with 19 examples. Six other items of noncompliance were identified during an inspection on January 7-31, 1980 with the following findings: failure to include quality storage requirements in procurement documents; failure to prescribe a quality storage activity in documented procedure; failure to adequately implement (verify conformance) a storage inspection program; failure to provide adequate storage/preservation instructions and to provide such instructions in timely manner; failure to adequately identify storage nonconformances; and failure to provide prompt corrective action for storage nonconformances.

IE Inspection Reports
No. 79-25 and
No. 80-03

2. NRC Actions

Same as identified in Contention A.

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Report No. 80-43

3. Licensee Corrective Actions

The licensee developed an extensive material control program which was implemented subsequent to this SALP evaluation period.

E. Contention

"Quality Control inspections by contractor personnel were not performed effectively."

1. Basis

Major examples are the same as identified in Contention A.

2. NRC Actions

Major examples are the same as identified in Contention A.

3. Licensee Corrective Actions

Major examples are the same as identified in Contention A.

F. Contention

"Conditions adverse to quality were not corrected prior to concrete placement."

1. Basis

Major examples are the same as identified in Contention A.

2. NRC Actions

Major examples are the same as identified in Contention A.

3. Licensee Corrective Action

Major examples are the same as identified in Contention A.

G. Contention

"Corrective actions were not taken for discrepancies."

1. Basis

Major examples are the same as identified in Contention A.

2. NRC Actions

Major examples are the same as identified in Contention A.

3. Licensee Corrective Actions

Major examples are the same as identified in Contention A.

H. Contention

"Marble Hill received a relatively large number of items of non-compliance when compared to other construction facilities under construction."

1. Basis

The number of items of noncompliance were high, however, in view of the fact that safety-related construction work was suspended by an NRC order for most of the appraisal period, there was no basis to

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No. 80-45

compare the licensee's regulatory performance with other plants under construction. The majority of items of noncompliance dealt with activities in progress before work was suspended, except those discussed in Contention D.

2. NRC Actions

Same as identified in Contention A.

3. Licensee Corrective Action

Same as identified in Contention A.

I. Contention

"There were instances where the licensee required escalated NRC enforcement action, frequent management contacts, and stopwork orders to assure compliance with NRC requirements. An order suspending all safety-related work was issued in August 1979, because of NRC concerns over the adequacy of the licensee's quality assurance program and controls over construction activities."

1. Basis

Major examples are the same as identified in Contention A.

2. NRC Actions

Major examples are the same as identified in Contention A.

3. Licensee Corrective Actions

Major examples are the same as identified in Contention A.