



#### 4.2 Containment and Other Safety Related Structures (6%)

During the assessment period there were two inspections in this area by the resident inspectors, an inspection by region based inspectors, a region based Construction Team Inspection, and one investigation. Areas inspected included modifications and repairs of box beams, modification of suppression pool downcomer supports, and erection of auxiliary steel in platforms and deckings.

As a result of an allegation that was not substantiated, a weakness was identified in the licensee's (A-E's) practices for background and qualification verification of current and prospective employees as promulgated by IE Circular 80-22. The licensee instituted acceptable background/qualification checks promptly.

The applicant has devoted sufficient management attention to this area to assure adequate quality control, identification and reporting of deficiencies, and acceptable resolution of technical concerns. A construction deficiency report identified inadequate box beam weld design resulting from improperly accounting for shear forces acting on beams. This is discussed further in Section 4.9. The licensee's resolution included repairs of all affected welds. Repairs were completed with acceptable quality that equalled or exceeded the original specifications. Repairs were well controlled and documented in accordance with appropriate quality control requirements.

Generic re-evaluation of suppression pool hydrodynamic forces identified deficiencies in the design of downcomer supports. The applicant's active participation in the EWR owners group and significant resource allocations to this problem resulted in satisfactory resolution with modifications being completed without major problems. After this assessment period, the applicant completed a full scale test of the Unit 1 suppression pool to verify the theoretical analysis of the hydrodynamic forces. This is indicative of a firm management commitment to satisfactory resolution of technical issues.

A design deficiency did occur that resulted in structural steel members blocking access to Main Steam Isolation Valves for PSI/ISI and routine maintenance. The applicant identified the deficiency and placed sufficient management attention to the resolution of the problem to assure an acceptable modification. Modifications were well controlled and documented. This item also indicates strong management controls over identified problems.

As shown in the above examples and discussed further in Section 4.9B, although the applicant (and his A-E contractor) has shown an occasional lack of sufficient detail and design review, when design deficiencies have been identified, sufficient resources have been applied to assure adequate resolution.

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The applicant has provided sufficient management control and resources to assure an adequate staff of well trained quality control personnel and has demonstrated significant strength in the area of welding control as noted in the Resident Inspector observations and verified in the Construction Team Inspection.

Conclusion:

Category 1

Board Recommendation

None

#### 4.3 Piping Systems and Supports (46%)

There were ten inspections conducted in this area (6 resident, 2 resident and specialist, 1 NDE mobile lab, 1 CTI). The large bore pipe installation is essentially complete.

Except for the problems discussed below, the overall quality of the licensee's work has been consistently good. Considering the complexity and stringent code requirements involved in this area, and the interface of many different engineering and construction disciplines (piping, welding, structural steel supports, mechanical, hydraulic, and QC), the licensee's performance in this area had been strong. The licensee has also shown strong follow up of the piping and support problems at other sites with a view to preventing them at this project. A typical example is the Susquehanna small pipe support problem. In the area of small bore piping and supports, the applicant closely followed the problems at Susquehanna and promptly took steps to inspect and analyze, the small bore piping system for evidence of similar deficiencies. The resident inspector closely followed and reviewed the applicants action in this area. The reevaluation of this area indicated that, except for seven support clamps similar to Susquehanna, this plant will not use supports of that design. The applicant's initiative, allocation of extra resources, and promptness in dealing with a potential problem is indicative of the applicant's strong program and management attention in this area.

During this assessment period, one item of concern identified was the repair welding of a Main Steam Isolation Valve. The ASME B&PV Code requires requalification of a weld procedure if PWHT temperature is changed, however, the repair in this case was effected without welding procedure requalification. This problem was due more to a misunderstanding of code requirements by one vendor than to poor procedure or administrative control. The supplier of this valve was a subcontractor to the NSSS vendor providing only the MSIVs and this was an isolated incident. Moreover, the valve subsequently was determined to be acceptable. Licensee followup and resolution of this item was sound and commensurate with the safety significance.

There was an item of concern involving welding QC inspection. The QC inspection report disclosed that hold points were missed for full penetration groove welds preheat and interpass temperature making this attribute un-inspectable due to the inprocess nature of the inspection. Weld acceptability was not affected because the temperature control was essential only for low ambient temperatures which were not involved. This item was an isolated case resulting from a single inspector's failure.

The above examples were both isolated incidents and were not an indication of a trend in poor procedure adherence and/or quality control.

REF: 5

The self-identification of quality problems and a willingness to promptly deal with them was also evident in the applicant's efforts to solve an excessive QC reject rate for pipe supports. This problem stemmed from a difference in acceptance criteria used by field engineering and QC. No adverse safety impact was identified due to this discrepancy.

The NRC nondestructive examination (NDE) van was on the project site for a two week period to perform independent verification of the quality of pipe welds. The piping systems, components, pipe sizes, materials, shop and field welds and ASME class 1, 2 and 3 welds. The findings of the independent NDE by NRC corroborated the licensee's previous acceptance tests, thereby contributing to the high degree of confidence in the licensee's NDE program.

Furthermore, in the last twelve months, the licensee and A-E have added substantial engineering expertise on-site in this area by stationing project engineering specialists from San Francisco and Philadelphia to review and provide expert overview of the higher caliber normally associated with home office engineering. This indicates a strong management involvement in this area in this assessment period.

The Construction Team Inspection and the resident inspectors observations established that a strong QC program existed in this area. In addition to the A-E's well trained QC personnel, the applicant's QA organization also has knowledgeable QA engineers. On many occasions, the NRC resident inspector has witnessed more than required inspection and/or NDE carried out by the applicant's QA engineers during their surveillance program to verify QC results.

Conclusion:

Category 1

Board Recommendation:

Maintain normal inspection coverage.