

Omission of Vertical Reinforcing Steel in
Fuel Handling Building Wall 3FW006362.5

10CFR50.55(e) Defect/Noncompliance Report
Report Number 008 WPPSS Unit 3

Summary

On October 24, 1979 concrete placement number FHW006362.5 was completed by Morrison-Knudsen. This placement is an interior shear wall in the Fuel Handling Building of Unit #3. As the vertical reinforcing steel for the next subsequent concrete placement was being set in place it was found that 194 vertical dowels had been left out of the previous placement. The responsible concrete placement contractor's Quality Control program who has the first line inspection responsibility, overlooked the 194 #11 vertical dowels which were omitted.

Description

Morrison-Knudsen, the placing contractor, has an approved concrete placing and inspection procedure #CP-11 which has a concrete placement checklist that includes verifying that all rebar is installed properly. This preplacement checklist was signed for final release but not for Reinforcing Steel QC Inspection at the time of concrete placement. However, the WPPSS/Ebasco's Concrete Tracking Record, which must be signed prior to release of concrete for placement, was signed by the contractors foreman and QC Inspector indicating all rebar was placed correctly. The contractor could not give any definite reasons for the omission of the subject dowels, except for an error in interpretation of the drawings.

The wall in which the noncompliance occurred is a 7' 6" to 9' thick shear wall that separates the Fuel Handling Building from the Reactor Auxiliary Building. The subject dowels are 11' 0" long straight #11 bars which were to be installed with a 5' 0" embedment length below elevation 362.5 and a 6' 0" projection above elevation 362.5. This wall serves as a main load bearing shear wall. The design loads exerted on the wall are a combination of earthquake, temperature, slab, and equipment loads. The third row of reinforcing in each face from El. 357.7 to El. 425 is due to temperature loads exerted by the Fuel Pool starting at elevation 383. The structural integrity of the wall would have been adversely impacted had the subject dowels been omitted.

The contractor initiated a Nonconformance Report (NCR #2510) on 10/30/79 and it was transmitted to the Owner/Engineer on 10/31/79. The NCR identified the dowels which had been omitted. The applicable Engineering drawing is 3240-G-2456 R2.

Corrective
Action

All of the omitted dowels shall be installed by drilling a three inch (3" - 1/2") diameter hole 4' 6" deep at a location as close to the original design location as possible for each dowel. The omitted dowels shall be installed in the drilled holes and grouted in place using an approved non-shrink grout.

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Three additional dowels will be drilled and grouted in a method identical to that stated above for the purpose of performing a tensile pull test on the test dowels. This will verify that the required design tensile strength is being developed and will meet the original wall design criteria.

The following action to prevent recurrence will be taken:

1. Morrison-Knudsen shall be required to change their procedures to require that all drawings applicable to concrete placements surrounding the one being checked out will be reviewed and checked for reinforcing bars and interferences which may impact the placement in question.
2. The contractor shall be required to complete his concrete placement checklist and attach a copy to the Concrete Tracking Record prior to signing the latter.
3. The contractor shall be required to provide a procedural mechanism to verify that all the required bars are installed in the correct location and manner, such as marking up a current set of rebar placing drawings by the QC Inspector.
4. Upon completion of the above three items a training session shall be conducted with the applicable personnel to assure that the action as stated will be correctly implemented.

These items shall be complete within thirty (30) days of receipt of the NCR with an approved recommended disposition.

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