

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-410/82-15

Docket No. 50-410

License No. CPPR-112 Priority -- Category A

Licensee: Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, New York 13202

Facility Name: Nine Mile Point Nuclear Station, Unit 2

Inspection at: Scriba, New York

Inspection conducted: December 13-17, 1982

Inspectors: *J. Durr* 1/6/83
for A. A. Varela, Lead Reactor Engineer date signed

Approved by: *J. Durr* 1/6/83
J. P. Durr, Chief, Materials and Processes date signed
Section

Inspection Summary:

Inspection on December 13 to 17, 1982 (Inspection Report No. 50-410/82-15)

Areas Inspected: Routine, announced inspection by a regional based inspector of high density fill material placement into the bioshield wall, observation of concrete activities for the fuel pool girders and interior walls and review of documentation to support the withdrawal of a reported potential deficiency identified in accordance with 10 CFR 50.55(e). The inspection involved 46 hours on-site.

Results: No violations were identified.

DETAILS

1. Persons Contacted

Niagara Mohawk Power Corporation

- * W. D. Baker, Construction
- * M. A. Balduzzi, QA Engineer, Lead Civil Engineer
- * J. Chiodo, QA Technician
- S. E. Czuba, Construction, Lead Civil Engineer
- * J. L. Dillon, QA Engineer, Site Lead
- * D. P. Dise, Vice President, QA
- * L. G. Finlan, QA, Senior Technician
- * D. Johnson, QA Technician
- * J. Ptak, Manager of Construction, Site
- * J. R. Saurini, Construction
- * D. Welch, QA Engineer

Stone and Webster Engineering Corporation

- * S. W. Crowe, Assistant Superintendent Field QC
- * G. W. Pierce, QA Site Supervisor
- * H. J. Pierre, Principle Office Engineer, Site
- * L. E. Shea, Superintendent of Engineering, Site
- * D. A. Smith, Principle Structural Engineer, Site
- J. Thompson, QC Supervisor
- R. Van Epps, Concrete Specialist, Boston Office

USNRC

- * R. D. Schulz, Resident Inspector

Walsh Construction Company

J. Conlon, Construction Engineer
J. Craig, Concrete Superintendent

Northern Ready Mix Company

G. M. Giveney, Manager
M. McCormick, Batch Plant Superintendent

* indicates attendees at exit interview on December 17, 1982

2. Plant Inspection - Tour

The inspector observed work activities in-progress, completed work and status of plant in these specific areas: the Biological Shield Wall (BSW), the Fuel Pool Girders and Interior Walls (FPG/IW). The inspector examined work for any obvious defects, noncompliance with regulatory requirements or license conditions. Inspection personnel were observed performing

required inspections and those interviewed were knowledgeable in their work activities. Craft personnel, supervision and construction engineers were interviewed as such personnel were available in the work areas.

No violations were identified.

3. Biological Shield Wall Fill Placement

Work activities associated with high density (concrete) fill material (HDFM) placement into the BSW were observed. The inspector performed a review of licensee commitments identified in the PSAR, the engineering specifications and drawings and the contractor's specification procedure prior to initiation of the fill placement. The BSW fill is designed for radiation shielding and is assumed to have no structural capability. The BSW consists of two concentric steel, 48' high cylinders connected by horizontal and vertical steel stiffeners. All steel is 1½" thick. The interior of the wall is divided into cubicles and each horizontal stiffener plate has access hole(s) to facilitate placement of HDFM in each cubicle. HDFM was designed and extensively proof tested in several mock-up tests prior to its placement into the BSW. It is a pumpable, self-leveling, low-bleed material required to have a dry density not less than 218 pcf. The fill materials consists of fine hematite aggregate, Type II portland cement, mix water, and a high range water reducing admixture. The total volume of HDFM is approximately 245 cu. yds. HDFM placement was observed using a conventional concrete pump through the standard 5 in. diameter steel pipe with 3" diameter flexible hose extension for injection through 3 in. diameter nozzles located on the inside diameter of the BSW at each cubicle, starting at the base cubicles.

The inspector observed two of seven separated placements totalling approximately 71 cu. yds. completed on December 14 and 15. Sixty-four flexible-hose nozzle attachments provided the technique for circumferential filling to 6'-9" and 8'-9" heights on respective days. As required by engineering specifications, a minimum of 12 hours cure time must elapse between successive lifts. The following work activities and QC in-process inspections were observed and evaluated for conformance to NRC regulatory requirements.

- Prequalification of concrete mix design for the HDFM.
- Adequacy of training sessions and discussions between engineers, contractor supervision and craftsmen prior to placement.
- Temperature control and accurate batching of ingredients, including limit to volume loading of concrete mixer trucks.
- Testing of HDFM in trucks on arrival at pumping station for temperature and slump, prior to addition of high range water reducing admixture.
- Controls on addition of admixture with water and remixing in trucks.
- Retest out of truck for slump, temperature and plastic weight and, cylinders for dry weight as required.
- Correlation sampling out of pump line.
- Controls at the BSW in accordance with prescribed sequence of nozzle attachments.

- Observations, controls, communication and coordination between end of pumpline, truck discharge, batch plant and concrete pump operation.
- QC verification, sample testing and documentation of designated activities.
- Pumping controls and verification of restrictions imposed by specification procedure S203C-CP-18 as to height of fill for each cubicle.
- Observation of fill bleeding at the air-bleed/vent holes in the horizontal stiffner plates, at the BSW block-outs and rise of the fill in the plywood overfill head boxes provided at each BSW block-out.
- Verification that the hardened fill settlement and/or cure shrinkage below underside of horizontal stiffner plates was not in excess of the maximum provided by design.

The inspector evaluated and determined from the above observations that high density fill material placed in the biological shield wall was performed in accordance with NRC requirements and SAR commitments to industry codes and standards.

No violations were identified.

4. Fuel Pool Girders and Interior Walls-Concrete Placement

The inspector observed work being performed on concrete construction for the Fuel Pool Girder/Interior Walls (FPG/IW) to determine whether work and inspection activities being accomplished according to engineering specification S203C, Revision 7, referenced codes, standards, Walsh Construction Company's approved procedure S203C-CP17, Revision 2 and drawing EC-41-A. These activities for the girder and wall concrete construction were observed and evaluated for conformance to criteria identified above:

- Placement preparation sign-off by craft supervision for reinforcing steel, embedment installation, form work and adequacy of man power and equipment for delivery by pump lines and crane/bucket.
- Preparation control, including concrete pre-placement sign-off identified in QC Concrete Pour Card/Checklist for the 1,410 cu. yd. Pour No. 1-123-349P.
- Placement of concrete including batch plant mixing at the site and off-site back-up plant, truck transport to pumps and crane for delivery to forms at elevation 340(±) from ground elev. of 250(±), control of concrete lift height, consolidation of concrete and control of concrete rise per hour at the stainless steel fuel pool liner.
- QC testing, in-process controls and generation of required documentary records.

From the above observations, the inspector evaluated and determined that the FPG/IW concrete placement made December 16 was accomplished in accordance with NRC requirements and SAR commitments to industry codes and standards.

No violations were identified.

5. Review of Nonroutine Events Reported by the Licensee

(Closed) Construction Deficiency (82-00-05)

On April 26, 1982, the licensee reported, by telephone, a potential significant design deficiency relating to insufficient documentation that their structural analysis consultant did not have to certify the computer analysis program they used for geological consideration of rock movement. As required by 10 CFR 50.55(e), a final letter report for this reportable deficiency, No. 82-00-05, was transmitted to the NRC regional office on May 26, 1982. The report states that the MARC-CDC computer program as modified by Dames and Moore has now been certified. A job-specific certification of the MARC-CDC computer program found all test cases provided satisfactory results. At this inspection the licensee provided the NRC inspector documentation regarding the appropriateness of the job-specific test cases to check the validity of the computational procedure used in the rock movement computer program. D&M concludes all test cases showed satisfactory results and the job-specific certification of the computer program MARC-CDC is considered complete.

Based on the above, the potential deficiency reported under 10 CFR 50.55(e) No. 82-00-05 was deleted. The inspector had no further questions regarding this matter.

6. Exit Interview

The inspector met with licensee and A-E representatives (denoted in Paragraph 1) at the conclusion of the inspection on December 17, 1982, at the construction site. The inspector summarized the findings of the inspection. The licensee acknowledged the inspector's comments.