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SUBJECT: Forwards steam generator repair project radiation protection
 90-day Interim Rept 3 & estimated man-rem expenditure.

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AEP:NRG:0980S

Donald C. Cook Nuclear Plant Unit 2
Docket No. 50-316
License No. DPR-74
STEAM GENERATOR REPAIR PROJECT
RADIATION PROTECTION 90-DAY INTERIM REPORT NO. 3

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

ATTN: T. E. Murley

December 19, 1988

Dear Dr. Murley:

As required by section 7.3 of the Safety Evaluation by the Office of Nuclear Reactor Regulation related to Amendment No. 100 to Facility License No. DPR-74, enclosed is one copy of the Steam Generator Repair Project Radiation Protection 90-Day Interim Report No. 3. This report summarizes the activities of the Project Radiation Protection/ALARA Group (PRPAG) for the period August 19, 1988, to November 20, 1988. Attachment 1 to this letter provides details of activities for each group; ALARA, PRISM, Radiation Protection Operations, Training, Radwaste, Support Services and Dosimetry.

The Project ALARA group continues to track exposure on a per shift basis and to report the weekly totals in the Project ALARA Committee and the Project Management weekly meetings. Attachment 2 to this letter provides a comparison, on a weekly basis, of the actual man-rem expended versus the revised estimated man-rem expenditure. The reported weekly estimate is derived by calculating the job percent complete based on actual RWP man-hours compared to 323,928 revised total Project RWP man-hours.

The estimated man-rem expenditure through November 20, 1988, was 1032.0 man-rem. Actual man-rem expenditure for this same period was 758.2 man-rem. The Project has completed the Preparation, Removal and Installation phases and now is completing the Restoration Phase. The difference between the actual and estimated accumulative exposure can be traced to the fact that most of the preparatory work took place in extremely low dose areas as is the case currently with the Restoration Phase work. Dose rates were closer to the estimated average effective dose rate (task exposure/task RWP hours) during the Removal and Installation Phases.

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Dr. T. E. Murley

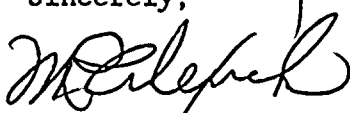
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AEP:NRC:0980S

This will be the final Radiation Protection 90-Day Interim Report submitted since the Project should be brought to a conclusion in December. We expect to issue a complete Final Outage Report approximately 90 days from the date that Unit 2 is returned to service.

This document has been prepared following corporate procedures that incorporate a reasonable set of controls to ensure its accuracy and completeness prior to signature by the undersigned.

Sincerely,



M. P. Alexich
Vice President

edg

Attachments

cc: D. H. Williams, Jr.
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NRC Resident Inspector - Bridgman
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Attachment 1 to AEP:NRC:0980S

Steam Generator Repair Project
Radiation Protection Activities
August 19, 1988 to November 20, 1988

COOK NUCLEAR PLANT, UNIT 2
STEAM GENERATOR REPAIR PROJECT
RADIATION PROTECTION 90-DAY INTERIM REPORT NO. 3

1.0 Introduction

Indiana Michigan Power Company is repairing the four steam generators at the Cook Nuclear Plant unit 2 which suffered secondary side tube degradation due to intergranular attack/stress corrosion cracking at the tube support plate and tube sheet regions. Since this type of large-scale maintenance has the potential for individual and collective radiation exposures beyond that of routine maintenance, the NRC received a description of the project's planned radiation protection program as part of the Steam Generator Repair Report submitted November 7, 1986, and revised on March 30, July 24, October 30, December 4, 1987, and February 18, 1988. The implementation of the Radiation Protection Program as of August 18, 1988, is provided below.

2.0 Highlights for the Period

Project work for August 19 - August 31 included welding of the reactor coolant pipes, re-work of the steam drums, setting of the steam drums, metallic insulation repair, and sealing of the S/G storage facility.

Project work for the month of September included cadwelding of re-bar, completion of girth and reactor coolant pipe welds, preparation and welding of main steam pipes, radiography of all welds, and installation of concrete form work.

Project work for the month of October included scabbling of removed doghouse concrete blocks for disposal, small bore pipe installation, re-bar installation, doghouse concrete pour and removal of internal reactor coolant pipe shielding.

Project work for November 1 - November 19 included insulation re-installation, interference re-installation, secondary hydrostatic testing on S/G #1 and #4, removal of cavity deck, removal of temporary shielding (external coolant pipe), concrete form removal and containment clean-up.

3.0 Dosimetry

PRPAG dosimetry staff continues to support the project and has badged 1385 personnel to date, granted 370 administrative dose limit extensions, completed 222 Radiation Exposure Investigations, issued 339 multipacks, performed 2518 whole body counts, performed 765 respirator fit tests, and issued 759 termination letters to project personnel.

During the period there were no positive whole body counts ($>1\%$ of maximum permissible body burden).

The TLD laboratory has processed 52,359 TLDs. As part of an interlaboratory comparison program, Project Dosimetry has successfully passed two mock NVLAP tests conducted by the University of Michigan. This brings the program up to a total of five mock NVLAP tests that were successfully completed.

4.0 Training

The PRPAG Training Staff continues to provide: General Employee Training (GET), Project-Specific Training, Supervisor ALARA Training, Respiratory Training and Radiation Protection Technician Training. The training of 159 Radiation Protection Personnel has been completed. A total of 1246 personnel have attended PRPAG GET training sessions. Since the last report 5 training modules have been developed or revised. A total of 414 formal training classes have been conducted in support of the Project.

5.0 PRISM System

PRISM is a computerized radiation work permit and dose tracking system. At present, PRISM maintains information on 1279 project workers, including personnel information, dose history, training qualifications and access information. To date, 232 radiation work permits have been written and maintained on the PRISM System. PRISM currently provides an average of 225 reports per week to the various project groups.

6.0 Radiation Protection Operations

The PRPAG Operational Radiation Protection Group staffing levels during the period grew to a maximum level of 100 technicians, (week of 8/27) to support approximately 204,000 entries in controlled areas. There have been 35 personnel contaminations (Project Total - 116) and 31 Radiological Occurrence Reports (Project Total - 53) during 199,889.02 (Project Total - 335,775.92) RWP-hours of work this period.

7.0 Support Services

Sea-Vans are being supplied to the repair contractor (MK-F) for expediting removal of miscellaneous tools and equipment from Containment. Support Services is in the process of decontaminating the materials in these Sea-Vans. Efforts by Support Services to assist MK-F in returning containment to pre-SGRP conditions include; area decontamination in containment, tool and equipment removal and decon, and miscellaneous housekeeping activities. Decon of temporary lead shielding used during outage is in progress.

8.0 Radwaste

A total of eleven shipments, totaling 16,633.4 net cubic feet (Project - 14,567.9, Unit 1 - 2065.5) and 280,962 net pounds (Project - 247,348, Unit 1 - 33,614) have been made during this period.

9.0 ALARA

During the current period, the PRPAG ALARA group completed initial reviews on the 17 remaining construction work packages. The major focus in the ALARA group continued to be the tasks in the field which were closely followed, reviewed and re-evaluated, as appropriate.

ALARA continued to perform tracking and trending of performance indicators (RORs, personnel contaminations, man-rem) and participated in root cause analysis and corrective action implementation.

As the Project moves toward completion, paperwork closeout and document turnover becomes more important. The ALARA group has closed out 64 work packages, 15 temporary shielding packages and 11 containment testing packages.

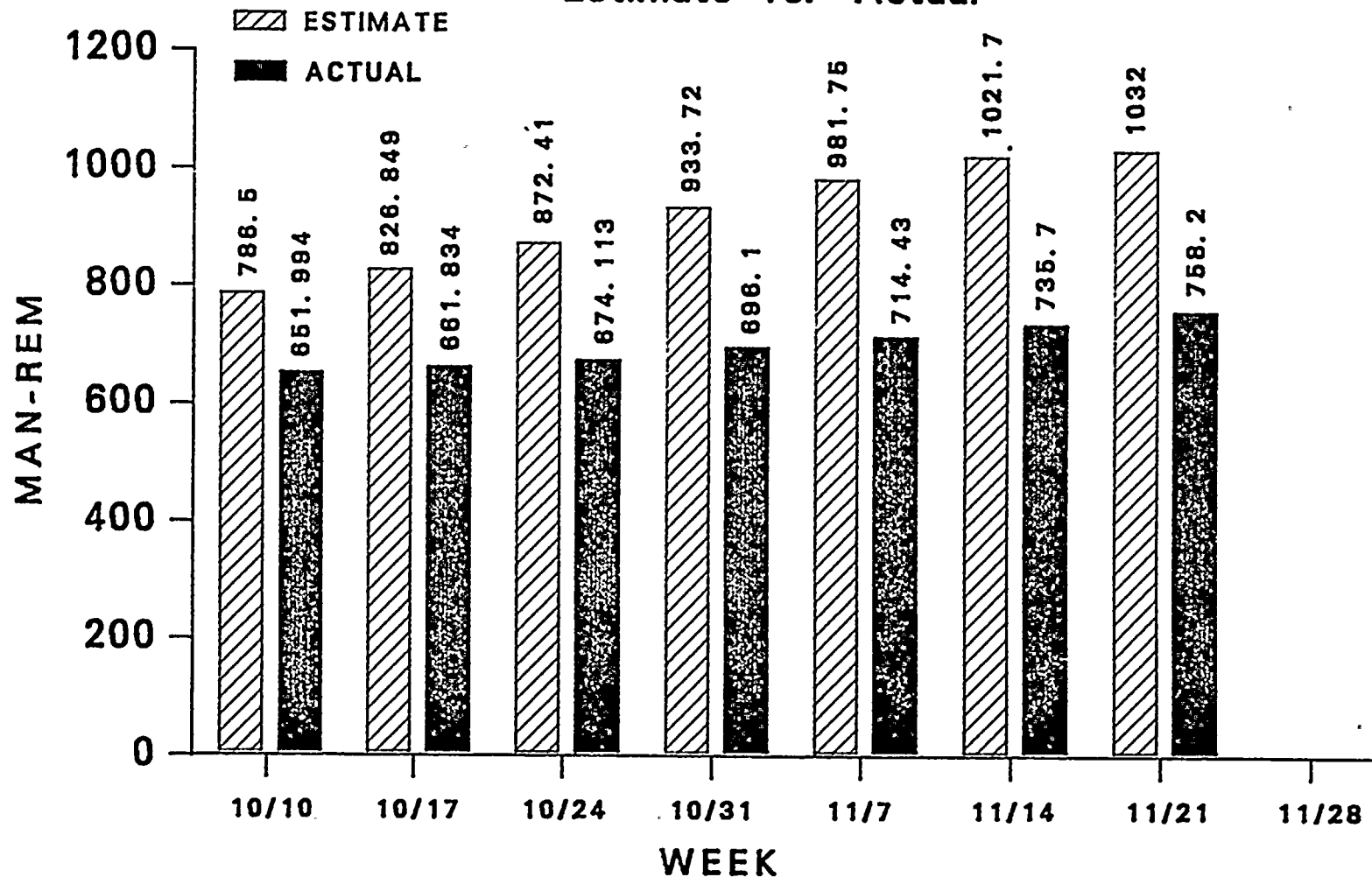
The ALARA committee held 9 meetings during the period and is now meeting on the post-critical path schedule of once per month.

Attachment 2 to AEP:NRC:0980S

**Comparison of Actual Man-Rem Expended Versus
Revised Estimated Man-Rem Expenditure**

SGRP RESTORATION PHASE *

Personnel Exposures
Estimate vs. Actual

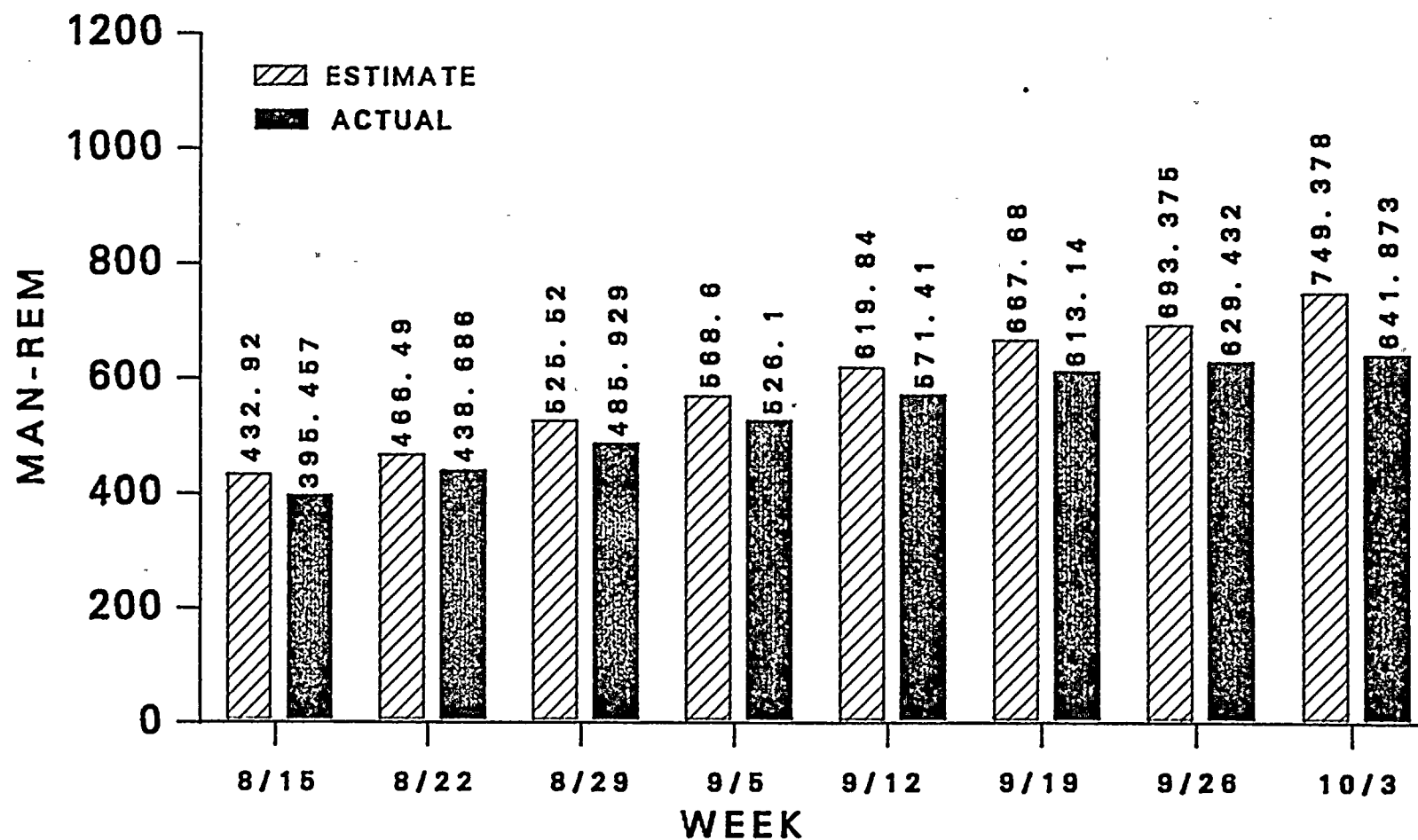


Estimate derived from 1032 total man-rem and hours complete

* Dose for this phase includes integrated dose from previous phases

SGRP INSTALLATION PHASE *

Personnel Exposures
Estimate vs. Actual



Estimate derived from 1032 total man-rem and hours complete

* Dose for this phase includes integrated dose from previous phases