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U. S. Nuclear Regulatory Commission
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Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Subject: 2003 Annual Environmental Report

The attached document includes the Annual Environmental Operating Report for Braidwood Station. This report is being submitted in accordance with Section 5.4.1, "Routine Reports," in Appendix B, "Environmental Protection Plan (Non-radiological)," of Braidwood Station's Facility Operating License, and covers the time period from January 2003 through December 2003.

Braidwood Station evaluated the objectives stated in the Braidwood Station Facility Operating License, Appendix B, "Environmental Protection Plan," Section 1, "Objectives of the Environmental Protection Plan." Exceptions to these objectives are listed in the applicable attachments.

The following Attachments are included in this report.

Attachment A - A list of all changes in Station design or operations, tests, and experiments as required by Appendix B, Section 3.1, "Plant Design and Operation"

Attachment B - A list of all nonroutine reports as required by Appendix B, Section 5.4.2, "Nonroutine Reports"

Attachment C - A list of non-compliances to the Environmental Protection Plan and the corrective actions

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Should you have any questions regarding this submittal, please contact Ms. Kelly Root, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,

Thomas P. Joyce
Site Vice President
Braidwood Station

Attachments:
Attachment A
Attachment B
Attachment C

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - Braidwood Station

ATTACHMENT A

List of changes in station design or operations, tests, and experiments as required by Section 3.1, "Plant Design and Operation" in Appendix B, "Environmental Protection Plan (Nonradiological)" of Braidwood Station's Facility Operating License

The Braidwood Station cooling lake was designed to operate with a makeup influent rate of 45,000 gpm and a blowdown rate of 21,000 gpm. However, the highest achievable blowdown was only 14,000 gpm when both units are operating. Due to the less than design lake blowdown flowrate (i.e., 14,000 gpm vs. 21,000 gpm), lake pH and lake impurities concentration have steadily increased, and the trend is expected to continue unless blowdown is increased. The increase in lake pH and impurities concentrations resulted in calcium carbonate precipitation of the bulk water in 2002 and later in 2004.

To restore the design conditions for lake blowdown, two blowdown booster pumps were installed to increase the blowdown flow to 25,000 gpm or slightly higher. One pump was installed at the beginning of the CW blowdown line of each unit to boost the pressure, which resulted in increasing the flow. Each of the pumps is driven by a variable speed drive to control the pump speed and the speed change rate to achieve the required flow and operate the system within its design parameters.

ATTACHMENT B

List of all nonroutine reports as required by Appendix B, Section 5.4.2, "Non-routine Reports", of Braidwood Station's Facility Operating License

Event Description

On May 15, 2003, Station personnel discovered leakage in the underground sump discharge line which resulted in a water-filled depression near the Turbine Building wall approximately 45 feet from a storm water drain. Braidwood Station personnel promptly responded by disabling the pre-treatment and low conductivity sumps, thereby stopping any additional leakage, began an investigation of the line leak, and took samples at appropriate locations.

Water in the subject sump is made up primarily of unfiltered drinking water from the pre-treatment drain sump. The water that flowed out of the underground sump discharge line traveled from the leakage point into a nearby storm water drain.

Analysis and Evaluation

Following the discovery of the leakage, samples for total residual chlorine (TRC) were taken at various locations including: (1) from the water filled depression (0.03 mg/l), (2) at the oil water separator (0.02 mg/l), and (3) at the confluence of the drainage ditch and spillway at the point where the ditch leaves Braidwood Station property (0.04 mg/l). Other locations were also sampled along the ditch with results of 0.04 mg/l, 0.11 mg/l and 0.12 mg/l, respectively. Since the TRC level at the point closest to the leakage was only 0.03 mg/l, the two higher levels are believed to have resulted from interference, most probably the presence of manganese which was not subtracted from these samples.

Corrective Actions

The pre-treatment and low conductivity sumps will remain disabled until the Station completes the line repairs. The effluent from these sumps is being routed to the Wastewater Treatment Plant which is the permitted system for processing these flows.

ATTACHMENT C

List of non-compliances to the Environmental Protection Plan and the corrective actions

None for 2003