

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

AUGUST 30 1979

Mr. John C. White
Administrator, Region IV
Environmental Protection Agency
345 Courtland Street NE.
Atlanta, Georgia 30308

Dear Mr. White:

PHIPPS BEND NUCLEAR PLANT - NPDES PERMIT NO. TN0029301 - COOLING TOWER BLOW-DOWN MINIMIZATION REPORT

Part I, page 6 of the NPDES permit for the subject plant requires the submittal, during the system design stage, of a report describing how blowdown water volume and temperature will be minimized.

Enclosed is our report describing the design for blowdown minimization and the design features available for operational control of solids concentration factors. Comprehensive operational procedures will be developed as the plant nears completion.

Sincerely,

Harry G. Moore, Jr.
Harry G. Moore, Jr., Ph.D.
Acting Director of Environmental
Quality

Enclosure

cc (Enclosure):

Mr. Kenneth E. Black, Regional
Director
U.S. Fish and Wildlife Service
17 Executive Park Drive, NE.
Atlanta, Georgia 30329

Mr. Sanford W. Harvey, Jr.,
Director, Region IV
Enforcement Division
Environmental Protection Agency
345 Courtland Street, NE.
Atlanta, Georgia 30308

Mr. Charles Kaplan, Coordinator
Thermal Analysis Unit
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M. DUNN
ENV SPEC BR

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Mr. John C. White

Mr. Earl Leming, Chief
Knoxville Regional Office
Environmental Health Services
1522 Cherokee Trail
Knoxville, Tennessee 37920

Mr. Elmo Lunn, Director
Division of Water Quality Control
Department of Public Health
621 Cordell Hull Building
Nashville, Tennessee 37219

Mr. Lee Tebo, Chief
Pollution Surveillance Branch
U.S. Environmental Protection
Agency
College Station Road
Athens, Georgia 30601

Director, Division of Site Safety and ✓
Environmental Analysis
Attention: Voss Moore, Director of
Environmental Projects
Nuclear Regulatory Commission
Washington, D.C. 20555

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Phipps Bend Design Features Available for
Operational Control of the Solids Concentration Factor

Makeup flow rate for each tower will be monitored in that unit's control room. Control valves in the makeup lines will be capable of being throttled by the operator to enable him to fully control the makeup flow by a combination of starting and stopping cooling tower makeup pumps and throttling flow in the makeup lines.

Blowdown will be discharged over a calibrated weir so that the basin water level (which will be continuously recorded) will determine the blowdown flow rate.

Each tower basin will be provided with a high and low level alarm and continuous level indication which is provided to that unit's control room. Control of the cooling tower makeup and blowdown system will be by remote manual means.

The operator can control the cycles of concentration through the manipulation of makeup flow. It is anticipated that a calibration curve will be generated that will correlate cycles of concentration vs. makeup flow under various meteorological conditions. After the makeup flow is varied, the resulting solids concentration can be verified by obtaining grab samples from the cooling tower basin.

POOR ORIGINAL

POW Cycles of Concentration
Optimization of Operation
of Ceiling Towers

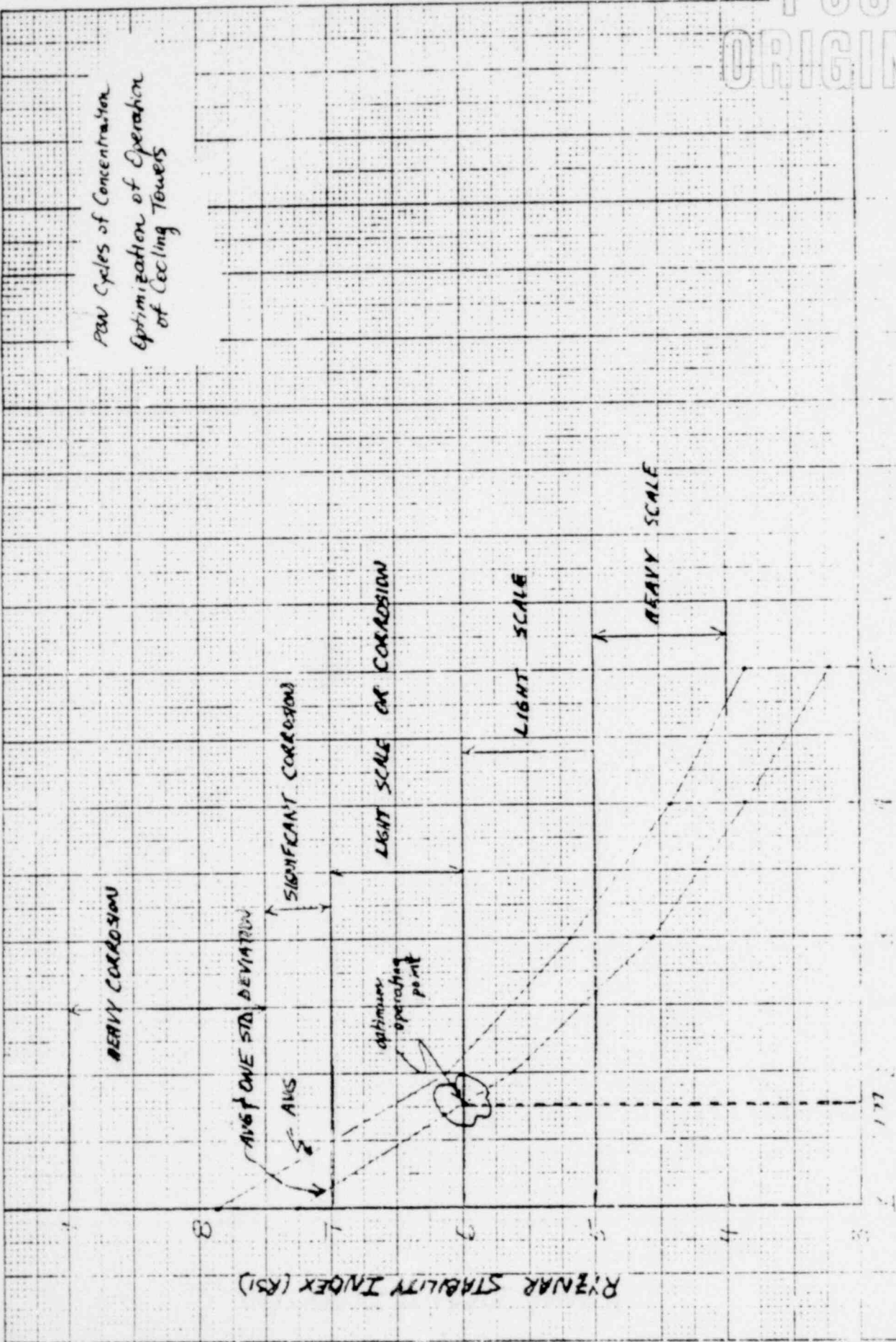


FIGURE 1