STS375.TG

STANDARD TECHNICAL SPECIFICATIONS SECTION 3.7.5 ULTIMATE HEAT SINK

A. PURPOSE

To provide guidance on Standard Technical Specifications (STS) Section 3.7.5 as it relates to determining the average water temperature of the ultimate heat sink.

B. BACKGROUND

As a result of severe summer weather conditions, both Indian Point Unit 2 and Unit 3 experienced an unforeseen increase in the temperature of their ultimate heat sink and source of emergency service water (Hudson River). When Unit 2 was faced with peak river water temperatures exceeding the TS limit, plant personnel proposed use of a time averaged temperature, which effectively reduced the surveillance temperature in order to remain below the LCO limit.

C. DISCUSSION

The Westinghouse STS (3.7.5) on the ultimate heat sink, identifies as part of the limiting conditions for operation, the requirement that, "The ultimate heat sink shall be OPERABLE with: b. An average water temperature of less than or equal to ( ) °F." Under surveillance requirements the TS read, "The ultimate heat sink shall be determined OPERABLE at least once per 24 hours by verifying the average water temperature and water level to be within their limits."

The confusion referred to, stems from the language of the STS which refers to an "average" water temperature. Some licensee's have interpreted this to mean that an acceptable surveillance temperature of the ultimate heat sink is a "time averaged" temperature based on multiple measurements taken over a 24 hour interval. The use of a time averaged temperature is <u>not</u> acceptable for demonstrating compliance with the TS limits. The reference in the TS to an "average" temperature, refers to a volumetric average or average based on the readings of various individual thermocouples taken at the same time. The TS do not allow a time average to effectively dampen peak values occurring due to higher daytime temperatures or

tidal effects. The TS limits the temperature to that assumed in the accident analysis or design of various components and systems. If the use of a time averaged temperature means that for significant periods of time the ultimate heat sink exceeds the TS limit or greatly exceeds the temperature limit for short periods of time, then for those intervals the plant is operating in an unanalyzed and potentially unsafe condition. Since the

ultimate heat sink is the long term mechanism for removal of reactor decay heat and cooling of essential equipment loads, it is important to maintain plant operation within design limits. Further, the service water system and ultimate heat sink is often the source of cooling for normal operating heat loads and provides margin against unnecessary plant trips.

D. REFERENCE

The guidance provided in this directive was extracted from a memorandum from John W. Craig, Chief, Plant Systems Branch, for Frederick J. Hebdon, Chief, Inspection and Licensing Program Branch, dated August 31, 1988, subject: Service Water/Ultimate Heat Sink Temperature Surveillance (NUDOCS 69478/360).

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