ATTACHMENT 5

LaSalle County Station Engineering Change (EC) 389677, Revision 0, "Evaluate UHS for 107 DegF Temperature"

Engineering Change

EC Number

: 0000389677 000

Status/Date : CLOSED

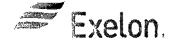
: LAS

Type/Sub-type: EVAL STRU

Facility



Print Date: 09/13/2012



1 Page:

EC Title: EVALUATE UHS FOR 107 DEGF TEMPERATURE

Mod Nbr :

KW1: SR

07/03/2012

KW2: KW3:

KW4: KW5:

Master EC : N

Work Group :

Department :

Priority

Temporary Aprd Reqd Date:

: 06/28/2012

Outage WO Required:

: N

Alert Group: DEM

Discipline

Exp Insvc Date:

Adv Wk Appvd:

Image Addr : Alt Ref.

Expires On :

Auto-Asbuild : N

Auto-Advance: Y Caveat Outst:

Resp Engr : SEAN

TANTON

Location

Milestone 110-PREPARE EC 06/28/2012 TANTSX

Date

<u>PassPort</u>

Name TANTON

SEAN

Req By APPROVED

120-REVIEW EC

06/28/2012 ENGEGA

ENGELS

GREG

APPROVED

I have performed a detailed, independent review.

My minor comments were editorial in nature and have been addressed

satisfactorily. G. Engels 6/28/12.

300-APPROVE EC 06/28/2012 LSLL1 800-ATTR CLOSED 07/03/2012 DRDWT

SCHMIT TAYLOR

DANIEL WAYNE

APPROVED CLOSED

Units

Fac Unit

Description

LAS 00

COMMON UNIT

Systems

Fac System

Description

LAS ZZ

SITE

EC 389677, Rev. 000 Evaluate the Ultimate Heat Sink (UHS) for 107 °F Temperature

Reason for Evaluation/Scope:

Per Appendix B of the LaSalle UFSAR (Ref. 1), the UHS is designed in accordance with Reg. Guide 1.27, Rev. 1. As such, the UHS is capable of providing sufficient cooling for at least 30 days based on the worst period of recorded weather conditions and to be capable of withstanding the following:

- 1) the most severe natural phenomena taken individually
- 2) the site-related events that historically have occurred or may occur
- 3) reasonably probable combinations of less severe natural phenomena and/or site—related events, and
- 4) a single failure of man-made structural features.

The purpose of this EC is to evaluate the UHS structure for a water temperature of 107 °F, which could occur during the design basis accident (DBA). The UHS analysis is contained within design analysis L-002457, Rev. 007 (Ref. 2). This EC will support a License Amendment Request to revise Technical Specification SR 3.7.3.1, which specifies the temperature limit for the UHS.

Detailed Evaluation:

As documented in Reference 1, the UHS is constructed of compacted clay materials. Several boring logs showing this are documented in Reference 1. Clay materials can withstand temperatures well above 107 °F.

The structural integrity of the UHS is documented in Section 2.5.5 of Reference 1. This evaluation is not dependent upon temperature. The slope stability of the UHS does not change with a change in UHS water temperature.

Additional failure analyses are documented in Subsection 2.5.5.2.5. The results of shad net failures concurrent with natural events such, seismic events, tornados, and other natural phenomena are documented. These are also not dependent upon UHS water temperature. The shad net has been constructed from materials (polyethylene net and steel mesh per Ref. 3) suitable for the conditions it will see.

Conclusions/Findings:

Based on the above, the UHS structure can withstand a water temperature of 107 °F. Reference 2 documents the temperature response of the UHS for the worst period of recorded weather conditions.

References:

- 1. LaSalle County Station UFSAR, Rev. 19
 - Section 2.4, Hydrologic Engineering
 - o 2.4.11, Low Water Considerations
 - Section 2.5, Geology, Seismology, and Geotechnical Information
 - o 2.5.4, Stability of Subsurface Materials and Foundations
 - o 2.5.5, Stability of Slopes
 - o 2.5.5.2.5, CSCS Pond Flume Failure Analysis
 - o Figure 2.5-2
 - o Figure 2.5-19
 - o Figure 2.5-50
 - o Figure 2.5-59
 - Section 3.1, Conformance with NRC General Design Criteria
 - o 3.1.2.4.15, Evaluation Against Criterion 44 Cooling Water
 - Section 3.2, Classification of Structures, Components, and Systems
 - Section 9.2, Water Systems
 - o 9.2.6, Ultimate Heat Sink
 - Appendix B, Conformance to Regulatory Guides
 - o Regulatory Guide 1.27 Rev. 1, Ultimate Heat Sink for Nuclear Power Plants
- 2. Design analysis L-002457, Rev. 007, LaSalle County Station Ultimate Heat Sink Analysis (See EC 389270)
- 3. Design analysis L-001417, Rev. 000, Hydraulic Evaluation of Shad Net