

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 07/03/2012
Facility : LAS
Type/Sub-type: EVAL STRU



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EC Title: EVALUATE UHS FOR 107 DEGF TEMPERATURE

Mod Nbr :		KW1: SR	KW2:	KW3:	KW4:	KW5:
Master EC :	N	Work Group :		Temporary :		N
Outage :	N	Alert Group:	DEM	Aprd Reqd Date:		06/28/2012
WO Required :		Image Addr :		Exp Insvc Date:		
Adv Wk Appvd:		Alt Ref. :		Expires On :		
Auto-Advance:	Y	Priority :		Auto-Asbuild :		N
Caveat Outst:		Department :		Discipline :		
Resp Engr :	SEAN		TANTON			
Location :						

<u>Milestone</u>	<u>Date</u>	<u>PassPort</u>	<u>Name</u>		<u>Req By</u>
110-PREPARE EC	06/28/2012	TANTSX	TANTON	SEAN	APPROVED
120-REVIEW EC	06/28/2012	ENGEA	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	SCHMIT	DANIEL	APPROVED
800-ATTR CLOSED	07/03/2012	DRDWT	TAYLOR	WAYNE	CLOSED

Units

<u>Fac</u>	<u>Unit</u>	<u>Description</u>
LAS	00	COMMON UNIT

Systems

<u>Fac</u>	<u>System</u>	<u>Description</u>
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
 - 2.4.11, Low Water Considerations
 - Section 2.5, Geology, Seismology, and Geotechnical Information
 - 2.5.4, Stability of Subsurface Materials and Foundations
 - 2.5.5, Stability of Slopes
 - 2.5.5.2.5, CSCS Pond Flume Failure Analysis
 - Figure 2.5-2
 - Figure 2.5-19
 - Figure 2.5-50
 - Figure 2.5-59
 - Section 3.1, Conformance with NRC General Design Criteria
 - 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
 - 9.2.6, Ultimate Heat Sink
 - Appendix B, Conformance to Regulatory Guides
 - 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