

LICENSE CHANGE NOTICE

LCN No.: 09.02-335 Revision No.: 0

Involves Change to Plant: YES NO

Reference change document: _____ Phase (If applicable): _____

Affected USAR Section(s):	Affected USAR Page(s):	Affected USAR Table(s):	Affected USAR Figure(s):
9.2.1 & 9.2.7	9.2-1, 9.2-3a, 9.2-40 & 9.2-46	N/A	N/A Source Document(s): Criteria 240.201A

Brief Description of USAR Changes:

Information on the use of the Normal Service Water system for post-fire safe shutdown in the event of a fire in Fire Area PT-1 (E, F & G Tunnels) will be added to section 9.2.1 of the USAR.

The statement that both subsystems of the Standby Service Water system cannot be rendered inoperable by a fire will be deleted from section 9.2.7.1 of the USAR.

A statement that the Normal Service Water system is use for post-fire safe shutdown in the event of a fire in Fire Area PT-1 will be added to section 9.2.7.3 of the USAR.

Originating Department Approval:

Preparer: Rudolph J. Koran Jr. KCN: 0429 Ext.: 3766 Date: 12 SEP 01
 Supervisor: R.E. Brown KCN: 1503 Date: 13 Sep 01
 Manager/Designee: L.J. Hill KCN: 1145 Date: 9/13/01

USAR Section Owner(s) Concurrence:

Section Owner: Ghadrat J. J. J. J. KCN: 0725 Date: 9-13-01

Licensing Review Approval:

LCN Receipt Date: _____
 License Basis Approval Date (if applicable): _____
 LBA date Verified by: _____ Date: _____
 LCN Checklist Complete (issues resolved): _____ Date: _____
 Change to be Incorporated into Amendment: _____
 USAR Coordinator Approval: _____ Date: _____

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9.2 WATER SYSTEMS

9.2.1 Normal Service Water System

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The normal service water system provides cooling water to remove heat from turbine and reactor plant auxiliary systems and components during all modes of plant operation. It is cooled by the service water cooling system as described in Section 9.2.12. The normal service water system operates during normal plant operation, as described in this section. In emergency situations, the safety-related standby service water system operates as described in Section 9.2.7.

The service water system is shown on Fig. 9.2-1a through 9.2-1h. Table 9.2-1 lists the flow requirements for the normal service water system.

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9.2.1.1 Design Bases

The normal service water system is designed in accordance with the following criteria:

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1. A normal service water system is designed to provide cooling water to the secondary side of the reactor plant component cooling water (RPCCW) and turbine plant component cooling water (TPCCW) heat exchangers and plant chilled water systems during normal plant operation and planned unit outages.

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2. It is also designed to supply cooling water to the residual heat removal (RHR) heat exchangers to dissipate reactor decay heat when the standby service water system is not in use.
3. The normal service water system components are designed in accordance with the safety classification listed in Table 3.2-1.
4. The normal service water system is designed to remove the heat load listed in Table 9.2-1.

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5. The normal service water system cooling water is cooled in the service water system heat exchangers, which are cooled by the service water cooling system described in Section 9.2.12.

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6. The normal service water system will provide the source of cooling water for all plant systems and components required for safe shutdown of the reactor in the event of a fire in Fire Area PT-1 (E, F & G-Tunnels).

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Piping wall thicknesses are increased over standard design requirements by corrosion allowance of 0.125, to ensure against degradation of system performance due to the effects of long-term corrosion, is provided for all piping but the 48-in header between the normal service water pumps and the turbine building. For this piping, a program of corrosion monitoring is provided to detect corrosion problems before the minimum pipe wall thickness is compromised (see Section 9.2.1.4). Additionally, the water in the normal cooling water system is chemically treated and protective coatings are applied to the internals of certain components to control corrosion.

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9.2.1.3 Safety Evaluation

The normal service water system is a non-nuclear safety system. Upon complete loss of normal service water, the plant is shut down. Cooling water for safe shutdown and maintenance of the safe shutdown condition is provided by the standby service water system (Section 9.2.7).

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The normal service water headers in the turbine building and radwaste building can be isolated from the safety-related lines in the auxiliary, diesel generator, control, and containment buildings by automatic block valves and check valves in the normal service water supply header, and automatic block valves in the normal service water return header. These valves are Safety Class 3, except the containment isolation valves which are Safety Class 2. Piping within the auxiliary building, diesel generator room, control building, and reactor containment is common to the normal service water and standby service water systems. This piping is Safety Class 3, Seismic Category I.

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Automatic isolation of the normal service water supply and return headers serving the auxiliary, control, and diesel generator buildings allows standby service water to cool essential components within these buildings under all accident conditions.

Analysis of postulated cracks in moderate-energy piping systems is covered in Section 3.6.

A fire in Fire Area PT-1 (E, F & G-Tunnels) could potentially render the standby service water system inoperable. Normal service water and its required support systems (including the necessary portions of the Off-Site Power Distribution System) has been analyzed to remain free from fire damage during a fire in Fire Area PT-1. In this area only, normal service water is credited for cooling the required safe shutdown systems and components.

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3. The system is designed to Safety Class 3 requirements, as defined in Section 3.2.3.3 for pumps, piping, and valving.
4. The system is designed to Seismic Category I requirements, as defined in Section 3.7.
5. Protection is provided from extreme natural phenomena such as earthquakes, tornadoes, and floods, as described in Sections 3.2, 3.3, 3.5, and 3.8.
6. Protection is provided from the effects of externally and internally generated missiles, as described in Section 3.5.
7. Protection is provided from the effects of pipe whip and jet impingement from high- and moderate-energy line breaks, as described in Section 3.6.
8. Fire cannot render both redundant mechanical subsystems inoperable (Section 9.5.1).
9. Redundancy is provided to permit isolation of inoperable components, subsystems, or piping without compromising their intended safety functions, as described in Section 9.2.7.3.
10. Provision is provided to permit operational functional testing of safety-related equipment during shutdown, as described in Section 9.2.7.4.
11. Nonseismic pipe, ductwork, or components are analyzed to ensure that their failure or collapse during an SSE does not compromise the system's safety function.

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9.2.7.2 System Description

The standby service water system is composed of the following:

1. Two equally sized, redundant piping systems, each supplying the components listed in Table 9.2-15. During normal plant operation, the normal service water pumps use standby service water piping to supply safety-related components.
2. Four 50 percent capacity, 7,690 gpm, motor-driven, wet pit, vertical centrifugal standby service water pumps. Two pumps are provided on each redundant supply header. Operating characteristics of the SSW pumps are given in Fig. 9.2-22. A wall in the SSW pumphouse physically separates each set of two pumps. All four pumps take suction from a common pump well in the ultimate heat sink water storage basin.
3. One ultimate heat sink cooling tower and associated storage basin, as described in Section 9.2.5. Each redundant header may be remotely aligned to the two redundant cells on the ultimate heat sink cooling tower

A single passive or active failure (e.g., fan trip, flow, level, pressure, or temperature condition) in the standby service water system initiates an alarm in the main control room. Upon annunciation, the operator responds by initiating the necessary valve action to isolate standby service water to the independent redundant portion of the system or to isolate a failed component or portion of the system initiating the alarm condition from the remainder of the standby service water system. The conservative assumption is made that standby service water to the residual heat removal heat exchanger in the suppression pool cooling mode is lost for 10 min while the operator is establishing shell-side flow to the residual heat removal heat exchanger in the redundant portion of the system. A transient analysis indicates that the suppression pool temperature increase is less than 1°F, and the containment pressure increase is less than 0.1 psi. This transient analysis shows that the design objectives of the system can be met following the failure of a single component.

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Large-scale leakage from the standby service water system due to major piping or component failures can be detected by the following methods:

1. Standby service water flows in each redundant header are monitored in the pump discharge and service water flow recorder. A mismatch in these flows indicate large-scale leakage.
2. Pump discharge header pressure transmitters alarm required header pressure.

Small-scale leakage from standby service water piping or components can be detected by the following methods:

1. Routine maintenance and inservice inspection
2. Monitoring building and tunnel sump levels..
3. Monitoring the operation of components cooled by the standby service water system.

9.2.7.4 Testing and Inspection Requirements

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The standby service water system will be tested periodically in accordance with Regulatory Position 2.b of Regulatory Guide 1.22 and the requirements of the ASME Code, Section XI.

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The reactor plant component cooling water system and the plant chilled water system (that supply the containment unit coolers during normal plant operations) are both demineralized water systems. Since the service water system is chlorinated, the above valves are not operated during normal plant operation to prevent the introduction of chlorinated water into these demineralized water systems. These valves can be tested when the reactor is shut down. All of these valves are accessible during

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A fire in Fire Area PT-1 (E, F & G-Tunnels) could potentially render the standby service water system inoperable. Normal service water and its required support systems (including the necessary portions of the Off-Site Power Distribution System) has been analyzed to remain free from fire damage during a fire in Fire Area PT-1. In this area only, normal service water is credited for cooling the required safe shutdown systems and components.

Facility: River Bend Station

Document Reviewed: LCN 09.02-335 Rev. 0

System Designator(s): 118, 256

Check the applicable review(s):

<input checked="" type="checkbox"/>	SCREENING	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, III, and IV required
<input type="checkbox"/>	50.59 EVALUATION Evaluation #:	Sections I, II, III, and V required

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: *Diane L. Stewart*
 Diane L. Stewart / EOI RBS / System Engineering / 9-13-01
 Signature / Name (print) / Company / Department / Date

Reviewer: *Rudolph J. Kerard Jr.* / *Rudolph J. Kerard Jr.* / *Energy Nuclear South - RBS /*
 Signature / Name (print) / Company / Department / Date

(PSRC): N/A
 Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
N/A	

Description of Proposed Change

Information currently presented in USAR 9A.2.5.7.2.7 is added additionally to NSW Section 9.2.1.1 & 9.2.1.3 and SSW Section 9.2.7.3, to provide increased awareness of the NSW system function as required safe shutdown system in the event of a fire in Fire Area PT-1 (Tunnels E, F & G). SSW Section 9.2.7.1.8 ("fire cannot render both redundant mechanical subsystems inoperable") is deleted; since implementation of the revised Post-Fire Safe Shutdown Analysis Criterion 240.201A, via MR 96-0020, this statement has not been true – the statement was inadvertently not omitted during previous associated USAR changes and is at odds with current USAR 9A.2.5.7.2.7.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>		RBS Licensing/TS web page
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>		RBS Licensing/TS web page
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	X	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>		USAR 9.2.1 & 9.2.7; EOI Library and RBS Licensing/TS web page
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>		RBS Licensing/TS web page
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>		RBS Licensing/TS web page
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>		RBS Licensing/TS web page
Fire Hazard Analysis	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See UFSAR (Appendix 9A, Section 9A.2)
Fire Protection Program	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See UFSAR (Appendix 9A, Section 9A.2)
Offsite Dose Calculations Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	RBS Website, Mgmt Manual, RBS Procedures on the Y Drive, RSP-0008
Process Control Program	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reference Library (Echelon site) – NMM Procedure RW-105
NRC Safety Evaluation Reports ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>		LRS Drive RBSNCLRS\LRS_DOCS\SER
If "YES", perform an Exemption Review per Section IV <u>OR</u> perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	<input type="checkbox"/>	<input type="checkbox"/>	X	
Certificate of Compliance	<input type="checkbox"/>	<input type="checkbox"/>	X	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>		EOI Library
Emergency Plan ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>		LRS Drive RBSNCLRS\LRS_DOCS\E_PLAN
Security Plan ^{2, 3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Not available electronically
Inservice Inspection Program ⁴	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reference Library (Echelon site) - Engineering Document #CEP-ISI-002
Inservice Testing Program ⁴	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reference Library (Echelon site) – Engineering Document #CEP-IST-002
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

¹ If "YES," see Section 5.1.5.

² If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.

³ The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.

⁴ If "YES", process the change in accordance with the 10CFR50.55a control program.

- B. Does the proposed activity involve a test or experiment not described in the FSAR? Yes No If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

SEE EXEMPTION REVIEW

The NSW system was not considered as a required safe shutdown system prior to MR 96-0020 (SEN 97-0051), since adequate separation/ protection had been provided in all fire areas to ensure the availability of one division of SSW. The RBS Thermo-Lag Barrier Resolution Project was tasked with reducing the need to credit Thermo-Lag for a postulated fire in Fire Area PT-1; the project team identified the potential for use of NSW, instead of SSW, in the event of a fire in this area. Use of NSW as a safe shutdown system requires that off-site power be available, but no credit had previously been taken for the availability of off-site power to support Appendix R post-fire safe shutdown. Based on a literal interpretation of Appendix R and associated generic NRC correspondence, as well as discussions with the NRC, it became "understood that a deterministic assumption of a loss of off-site power is not required for plant fire areas that do not fall under the requirements of Sections III.G.3 and III.L of Appendix R" (Fire Area PT-1 is such an area).

Key points from SEN 97-0051:

- Use of NSW as a safe shutdown system was covered under the scope of Operating License Condition 10.
- Radiological consequences (e.g., off-site dose) are not altered by using a revised shutdown approach (NSW instead of SSW).
- The Post-Fire Safe Shutdown Analysis (Criterion 240.201A), implemented by MR 96-0020, ensures that a fire cannot lead to a Chapter 15 accident.
- MR 96-0020 did not alter any "equipment operational design", avoiding the potential introduction of a new failure mechanism. Completion of associated MRs 96-0023, 96-0024 & 96-0052 ensured that a malfunction of equipment important to safety (e.g., spurious opening of an MOV) would not be caused by a fire in Fire Area PT-1.
- No new system alignments were necessitated by MR 96-0020. NSW and off-site power are normally used for plant shutdown.
- The ability to achieve post-fire safe shutdown without off-site power is not required to be demonstrated, since a loss of off-site power could not be caused by a fire in Fire Area PT-1 (calculation G13.18.3.6*12) and since this area is "not an alternate shutdown area as discussed in 10CFR50 Appendix R Sections III.G.3 & III.L".
- No specific Technical Specification is associated with a fire in Fire Area PT-1.

- D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) Yes No

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Methodology For Performing The LBD Search A manual scan of text was performed of USAR 9.2.1.1, 9.2.1.3, 9.2.7.3 and 9.2.7.1.8 (those sections affected by the proposed change). During the 50.59 preparation, a manual search was conducted of the following LBD sections; the electronic USAR was not used.

Documents:

Keywords:

TS/TRM 3.5.1, 3.7.1 & Bases	(manual search performed)
TRM 3.7.9.6	
RBS System Notebook SWP-10 (PSA)	
AOP-0009, "Loss of NSW", Step 5.2	
AOP-0052, "Fire Outside the MCR"	
Criteria 240.201A, "RBS Post-Fire Safe Shutdown Analysis"	
SER Supplement 3, Section 9.5.1, "Fire Protection Review"	
NUMARC 93-01	

FSAR Sections Reviewed:

FSAR Figures Reviewed:

9A.2.5.7.2.7 (Post-Fire SSA: Fire Area PT-1)	
9.2.1 (Normal Service Water)	
9.2.5 (Ultimate Heat Sink)	
9.2.7 (Standby Service Water)	

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

- | <u>Yes</u> | <u>No</u> | |
|--------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve dredging activities in a lake, river, pond, or stream? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the amount of thermal heat being discharged to the river or lake? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the concentration or quantity of chemicals being discharged to the river, lake, or air? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharge any chemicals new or different from that previously discharged? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the cooling tower that will change water or air flow characteristics? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or use of equipment that will result in an air emission discharge? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or modification of a stationary or mobile tank? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the use or storage of oils or chemicals? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater? |

IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in either Section II.A or II.B, above.

A. Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.

- The proposed activity is editorial/typographical as defined in Section 5.4.1.
- The proposed activity represents an "FSAR-only" change as allowed in Section 5.4.2_____. (Insert item # from Section 5.4.2).
- The proposed activity impacts design function as described in Section 5.4.3 as follows:
- The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**
- The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**
- The proposed activity does not adversely affect an evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.
- The proposed activity or portions thereof, is controlled by another regulation instead of 50.59 per Section 5.4.4. (Portions of the change not controlled under the other program must be evaluated under 50.59.)
- An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.4.5. Reference 50.59 Evaluation # 97-0051 (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.
- The proposed activity, in its entirety, has been approved by the NRC per Section 5.4.6.
Reference: _____

B. Basis

(Provide an adequate basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions.)

50.59 Evaluation 97-0051 reviewed MR 97-0020 and site calculation G13.18.3.6*12, which implemented a revised Post-Fire Safe Shutdown Analysis. This evaluation reviewed use of the Normal Service Water system as a safe shutdown system following a fire in Fire Area PT-1. LCN 09.02-335 only more fully incorporates the results of MR 97-0020 and calculation G13.18.3.6*12. All of the material to be incorporated by LCN 09.02-335 was previously evaluated by 50.59 Evaluation 97-0051.