NEDO-31446-1
Supplement 1
Class I
September 1987

SUPPLEMENT 1 TO NINE MILE POINT UNIT 1 SAFER/CORECOOL/GESTR-LOCA LOSS-OF-COOLANT ACCIDENT ANALYSIS

P. Wei

W. A. Zarbis

Approved: _____
J. S. Charnley, Manager
Fuel Licensing

Approved: _____
L. D. Noble, Manager
Reload Nuclear Engineering-1

NUCLEAR ENERGY BUSINESS OPERATIONS • GENERAL ELECTRIC COMPANY
SAN JOSE, CALIFORNIA 95125

GENERAL ELECTRIC

DISCLAIMER OF RESPONSIBILITY

This document was prepared by or for the General Electric Company. Neither the General Electric Company nor any of the contributors to this document:

A. Makes any warranty or representation, express or implied, with respect to the accuracy, completeness, or usefulness of the information contained in this document, or that the use of any information disclosed in this document may not infringe privately owned rights; or

B. Assumes any responsibility for liability or damage of any kind which may result from the use of any information disclosed in this document.

CONTENTS

1. INTRODUCTION AND SUMMARY

This report contains the maximum average planar linear heat generation rate (MAPLHGR) values for the GE fuel design (GE8X8EB bundle type BD321B) to be loaded into Nine Mile Point Nuclear Generating Station Unit 1.

Appendix A contains summaries of MAPLHGR versus exposure for the BD321B fuel bundle. These MAPLHGRs are determined based on the analyses detailed in Reference 1.

Appendix B contains a description of the BD321B fuel type.

2. REFERENCE

1. NEDC-31446P, "Nine Mile Point Unit One SAFER/CORECOOL/GESTR-LOCA Loss-of-Coolant Accident Analysis," June 1987.

APPENDIX A

MAPLHGR* VERSUS AVERAGE PLANAR EXPOSURE

Table A-1

MAPLHGRs FOR BUNDLE TYPE BD321B**
FIVE-LOOP OPERATION

Plant: NMP-1 Fuel Type: BD321B

Average Planar Exposure (GWd/MTU)	MAPLHGR*** (kW/ft)	PCT (°F)	Local Oxidation Fraction
0.22	10.40	2023	<0.150
1.1	10.51	2032	<0.150
5.5	11.05	2089	<0.150
11.0	11.59	2154	<0.150
14.0	11.84	2176	<0.150
15.0	11.83	2184	<0.150
16.5	11.40	2118	<0.150
22.0	10.90	2087	0.165
27.5	10.80	2114	0.169
30.0	10.76	2109	0.167
33.0	10.49	2082	0.154
38.5	9.97	2040	0.134
44.0	9.40	1941	0.095
50.0	8.74	1879	0.075

*One set of MAPLHGRs is conservatively applied to all lattices in the BD321B Bundle.
**Lattice definitions appear in Appendix B.
***Limited by ECCS considerations for 15 < E < 30 GWd/MTU exposure range.

Table A-2

MAPLHGR MULTIPLIERS FOR BUNDLE TYPE BD321B*

Four-Loop Operation

Idle Loop Condition	Exposure Range	MAPLHGR Multiplier
Unisolated	All Exposures	
Isolated	$E \leq 15$ or $E \geq 30$ GWd/MTU	
Isolated	$15 < E < 30$ GWd/MTU	

Three-Loop Operation

Idle Loop Condition	Exposure Range	MAPLHGR Multiplier
Unisolated	All Exposures	
Isolated	$E \leq 15$ or $E \geq 30$ GWd/MTU	
Isolated	$15 < E < 30$ GWd/MTU	

*Based on the discussion in Reference 1, no MAPLHGR multiplier is required for operation in the Extended Load Line Limit Analysis (ELLLA) region.

APPENDIX B

BUNDLE DESCRIPTION

Table B-1

FUEL BUNDLE INFORMATION FOR BD321B

Enrichment (Wt. % U-235)	Weight of U (kg)	Maximum k-inf.	Exposure at Max. k-inf. (GWd/MTU)

Figure B-1. Enrichment Distribution for the BD321B Fuel Bundle

Figure B-2. Gadolinium Distribution for the BD321B Fuel Bundle