

1

Neutron Spectrum Calculation
in Containment Building of KORI Unit 1
Using Monte Carlo Simulation

, , , *

17

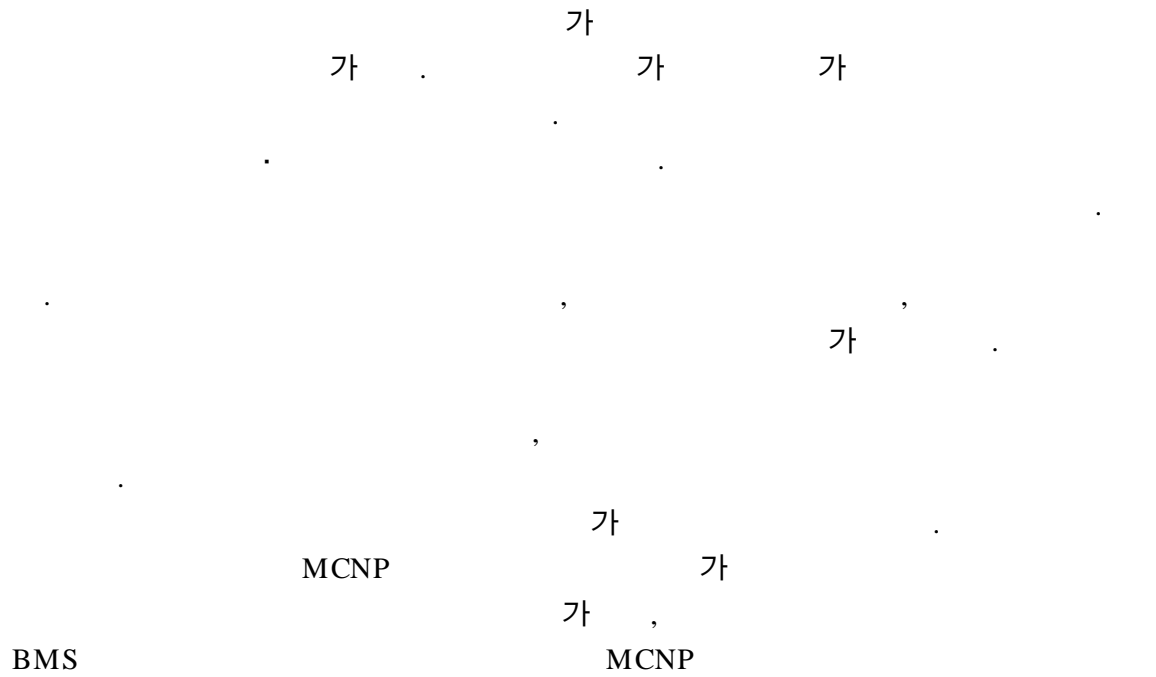
가
MCNP 가
1 20
가 . MCNP
MeV 가 . 1

Abstract

It is requested basically to make certain safety information about distribution of radiation field in nuclear power plant. Especially, the containment building is concerned with evaluation of neutron exposure for high-level radiation field. In this study, it is performed modeling of containment building and neutron spectrum calculation in it using MCNP code of Monte Carlo Method for Kori unit 1 cycle 20. The calculated neutron spectrum is compared with measurements which was performed by Nuclear Environment Technology

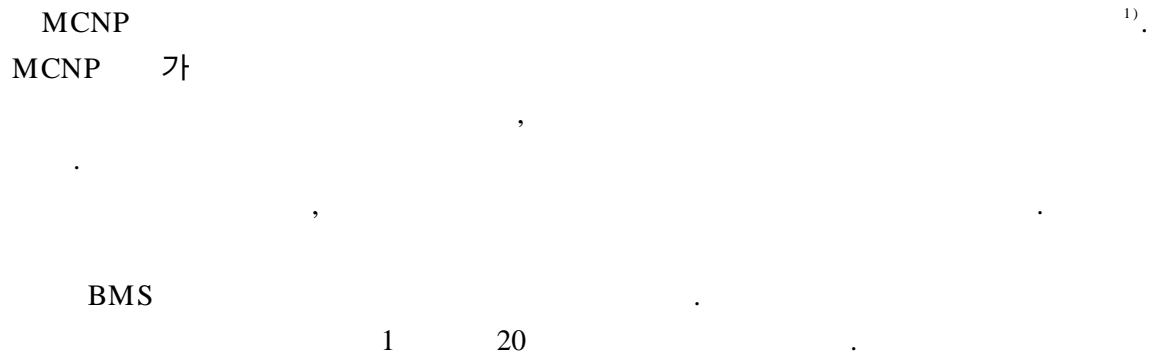
Institution. The calculated neutron spectra are similar with measurements below 1 MeV. The model of containment building and calculation of neutron spectrum is verified by this compare results.

1.



2.

2.1



2.1

가 가

1 20
KCODE

BOC

²⁾ MCNP

1

가

2

2.2

가

MCNP

가

1

³⁾

FSAR

, 가

가

. MCNP

3

1

6ft, 20 ft, 44 ft 70ft

4

. MCNP

4

L1-a 6 20 ft

. L2-a 20 44 ft

, L2-b 20 44 ft

L1-a

. L3-a

44 70 ft

가

3.

3.1

1 20 BOC

1.00265±0.0002

1 20 BOC
RMS 2.96%
KCODE

4), 5)

2

3.2

5

가

0 1 MeV

L1-a

. 1 10 MeV

. L2-a L3-a

L1-a L2-b

가

10^{-1} neutrinos/cm²sec

MeV

, 4

. 4

가

가

가

. L1-a

10^{-3} MeV

가

가

, L2-b

10^{-1} MeV

L2-a, L3-a

. L2-a L3-a

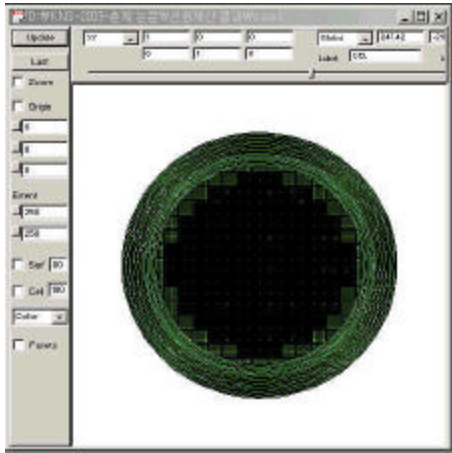
1 MeV

L2- a, L3- a
가 .

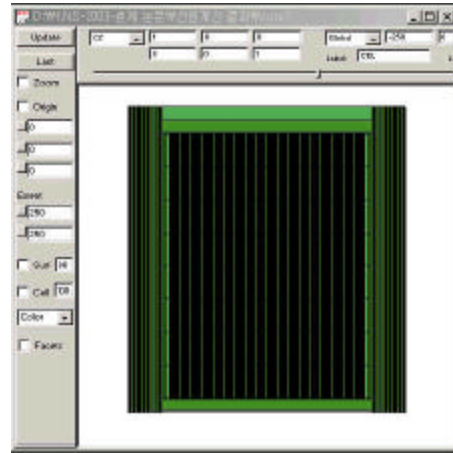
4.

MCNP
가 ,
1 MeV
가 .
:
() .

1. J. F. Briesmeister, ed., "MCNP-A General Monte Carlo N-Particle Transport Code Version 4C," LA- 13709-M, Los Alamos National Laboratory, 2000.
2. , "The Nuclear Design Report for Kori Nuclear Power Plant Unit 1 Cycle 20," KNF-K1C20-01034, (), 2001.
3. , "Final Safety Analysis Report: Kori Unit 1,"
4. , " 가 ," KINS/HR- 245, , 1999.
5. OECD, "Computing Radiation Dose to Reactor Pressure Vessel and Internals," NEA/NSC/DOC(96)5, OECD/NEA, 1996.
6. U.S. Nuclear Regulatory Commission, "Calculation and Dosimetry Method for Determining Pressure Vessel Neutron Fluence," Regulatory Guide 1.190, 2001.

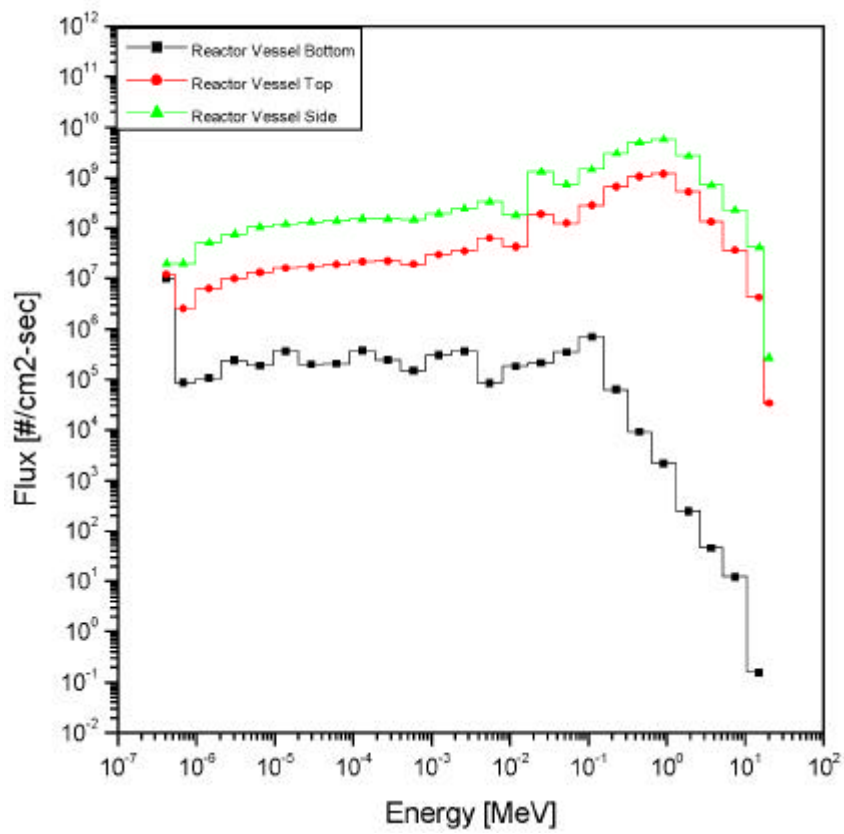


A.

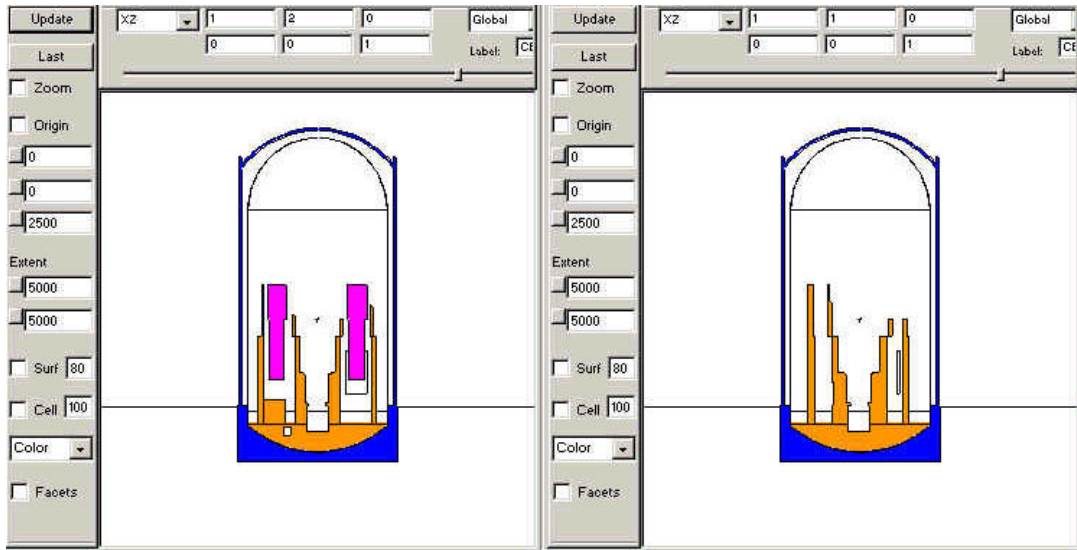


B.

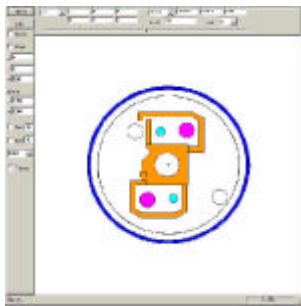
1. MCNP



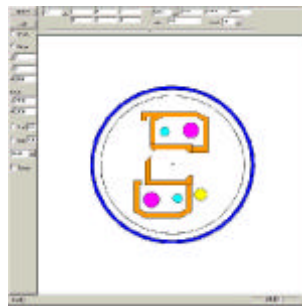
2.



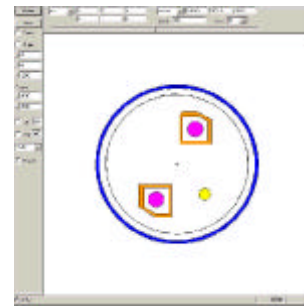
A. 1



B. 1
20ft



C. 1
44ft

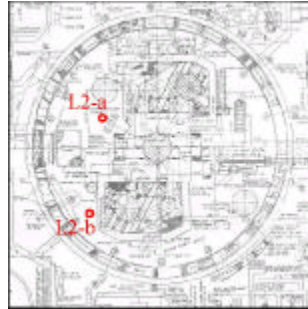


D. 1
70ft

3. MCNP



A. 6 20 ft



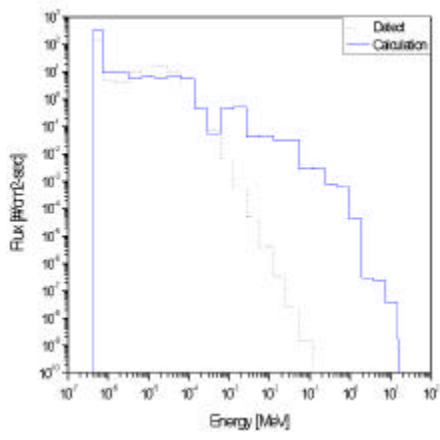
B. 20 44 ft



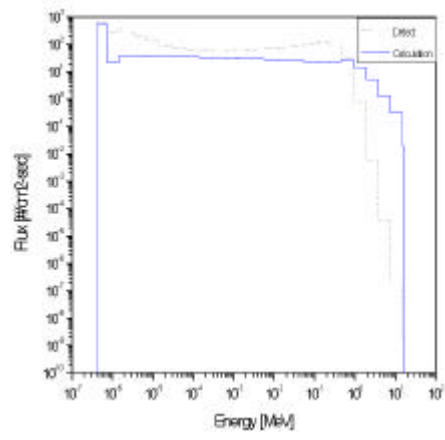
C. 44 70 ft

4.

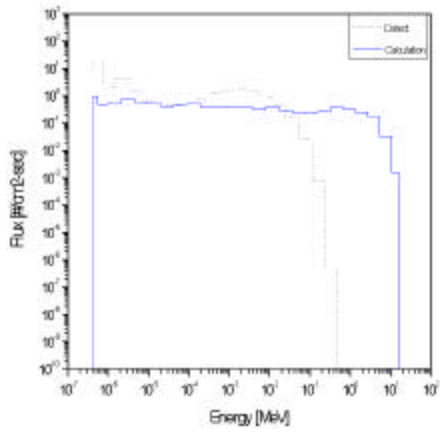
FSAR



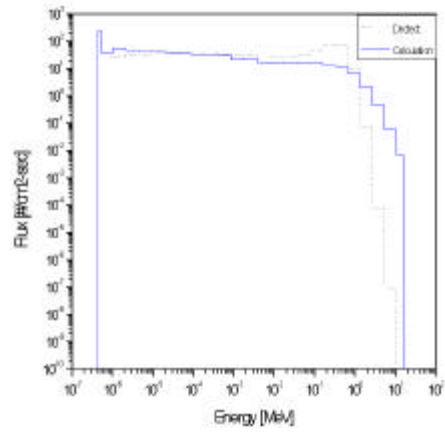
A. L1-a



B. L2-a



C. L2-b



D. L3-a