

Out-Pile Test Plan for Lifetime Extension of Shutoff Units in HANARO

150

(HANARO)

가

Abstract

It is estimated that the number of drops of shutoff rods in HANARO will reach the endurance-verified numbers before the end of the reactor life. To resolve this situation, we have a plan to prepare of a new spare unit by the performance verification test for the local product, and extend the lifetime of shutoff units installed in the reactor by performing an additional endurance test in the out-pile test facility using an existing spare unit. This paper describes the overall situations and test plan for the out-pile test to extend the lifetime extension of shutoff unit.

1.

가

(HANARO)

4

가

1500 [1].

1994 , ,

2002 가 1000

67% .

2 1

가 , 가 , 가

[2]. , ,

가 , ,

AECL MAPLE 4000

가 , ,

가

2.

2.1 1/2

가 '1/2 ' 2000

[3]. , 2002-2003 1/2

1/2 . .

13 , 4 , 3 .

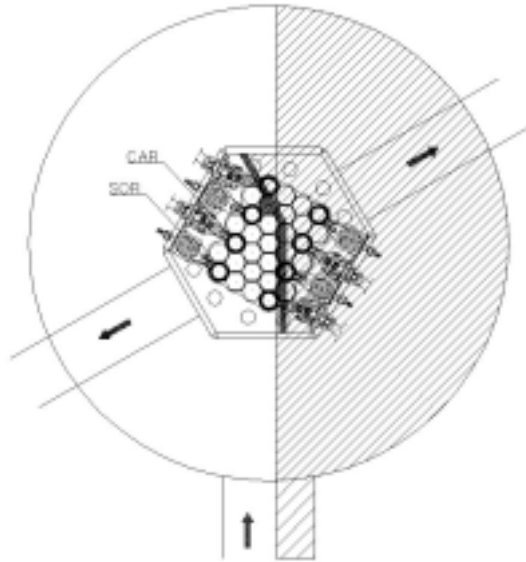
1/2

(plenum), , (chimney) (window)

1 1/2

1 ,

2 가 1/2



1. 1/2

2.

2.2

(track) 가 (carriage), AECL

2003

2.3

8m
가

12.2m

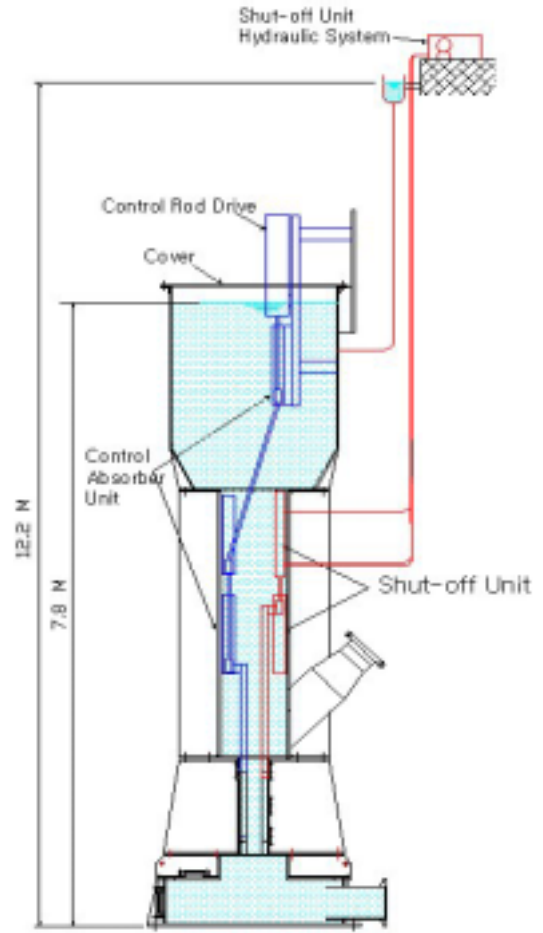
1/2

7.8m

1/2

3 1/2
 (shut-off unit)
 (control absorber unit)가 1

2.4



3. 1/2

2.5

가

가
 가

(control panel)

가

가

2.6

110V , 24V 220V 가 13m
8m
1/2
1/2 1 가

2.7

1/2 가
/ / /
, shroud / , absorber /
/ adaptor
가 가

2.8

가 가

shroud tube(가)

가
shroud tube,

(telescope),
target

target

shim

target 7m

0.2-1.2mm

3 가
(seal)

3.

1 1500

4

가

가

4000

가

4.

(HANARO)

가

가

(1)

(2)

가

4

(3)

/

(4)

(5)

1. R.R. Bodner, KRRR Shut-off Unit Test Report, AECL/KAERI, TR-37-31730-001, Rev.1, 1994.1.14
2. Y.G. Cho, S.I. Wu, J.H. Lee, J.S. Ryu, Y.C. Park, J.S. Wu, B.J. Jun, Ageing Management Program for Reactor Components in HANARO, 9th Meeting of The International Group on Research Reactors, 2003. 3. 25
3. 11 , / , , KAERI/TR-1633/2000, 2000.8,