

## Study on Design and Construction Features of Nuclear Power Plant for the Enhancement of Safe Decommissioning

, , , , , , \*

150

\*

19

가 ,

가

### Abstract

To protect environment and personnel health from hazardous radiation is primary issue in decommissioning of nuclear power plants contrary to that of conventional power plants. As experience has been gained and this means ensure safety against risk in decommissioning from the design, construction and operation phases. Therefore, related features have been estimated to prepare future decommissioning of existing and planed nuclear power plants even if there is no practical experience of decommissioning domestic commercial nuclear power plants. As a result of analysis several recommendations have been derived such as decommissioning policy and strategy, minimize of contamination and waste generations.

# I.

가 . 가  
가 ,

가  
40 가

가 가

Generation Reactor)

KNGR(Korean Next

가

가

# II.

## 1.

가

가 , ,

가

가

가

가

(a)

(b)

(c)

(d)

(e)

(f)

(g)

1.1

가

가

가

가 가

가

가

가

1.2

가

가

$^{60}\text{Co}$

가

1.3

가

가

가

가

가

가

가 가

가

(Clearance Level)

(Bq/g Bq/cm2)

가

가

1.4

가 가

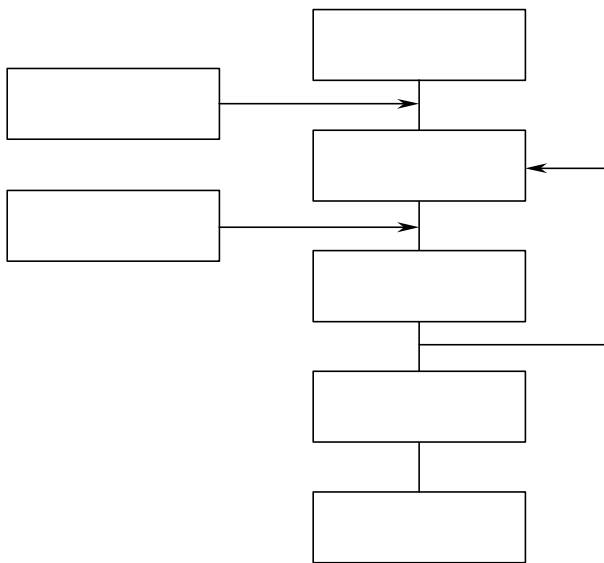
가

가

가

가

2.



가

1

1.

가

가

가

가

가

가

가

(a)

(b)

(c)

(d)

(e)

2.1

가

가

2.2

가

가

2.3

가

가

2.4

가

2.5

3.

가

(a)

(b)

(c)

(d)

(e)

### 3.1

#### 3.1.1

, ,  
가

(a)

(b)

(c)

(d)

(e)

,

, (crud) ,

(a)

가



- (b)
- (c)
- (d)

### 3.1.2

(a)

- (b) ( ; )
- (c)
- (d)

### 3.1.3

가

가

### 3.2

- (a)
- (b) (One-Piece Removal)
- (c)
- (d)
- (e)
- (f)
- (g)

3.3

2

가

- (a)
- (b)
- (c)
- (d)

, 가

가

가

가

3.4

( ; 가 )

- (a)
- (b)



4.1.2

(Radioantimony)      122Sb    124Sb      60Co      (stellite)      59Co가  
PWR

4.1.3

- (a)
- (b)
- (c)

Li    2~2.2ppm      pH    7.4      Butt

4.2 KNGR  
KNGR

4.2.1

- (a)

가      가

가

가

(b)

가

(c)

KNGR

가 가

4.2.2

(a)

KNGR

0.1%

(b)

가 가

0.05%)

(

(c)

pH 6.9~7.4

가

가

600

가

pH 가

ALARA

가

4.2.3

(a)

(b)

가

4.2.4

17wt%

가

가

**III.**

가

가

KNGR

가

(a)

(b)

(c)

(d)

(e)

(e)

(f)

#### IV.

- [1] "Design and Construction of Nuclear Power Plants to Facilitate Decommissioning", Technical reports series No'382, IAEA, 1997
- [2] "Decommissioning techniques for research reactors", Technical reports series No' 373, IAEA, 1994
- [2] "Decontamination and demolition of concrete and metal structures during the decommissioning of nuclear facilities", Technical reports series No' 286, IAEA, 1988
- [3] "Regulatory process for the decommissioning of nuclear facilities", Safety Series No' 105, IAEA, 1990
- [4] , , " 가 ", No' 627, KAERI, 1995