

## Development of Technology and Tools for Measurement of Inner Shell Deformation of HANARO Reactor

150

12m

가 0.02mm

shroud

### Abstract

It was estimated by an analysis method that the inner shell of HANARO reactor will be deformed due to pressures, loads, creep and growth during reactor operation. To confirm the analysis validity and safe operation of reactor, we developed a technology and tools to remotely measure the straightness of the inner shell located 12m below the pool top. The performance and the accuracy of the measurement tools have been verified through tests using a dummy inner shell. The accuracy of the measurement shows very good results with a maximum error of 0.02mm. We are developing additional tools to remove the shrouds and absorber rods from the reactor for the measurement work to be performed in near future.

1.

(creep & growth)

7mm

가

2.

7mm

가

가

가

가 4mm

2mm

[1].

가

20

(30MW)

0.84mm

[2],

2mm

가

(

)

가

1995

2001

18300 MWD(50 MWY)

[3], 30MW

1.7

가

10

2005

[4]. 가

가

가

2003

가

3.

10 10 0.55mm

30MW

0.1mm

(1) :

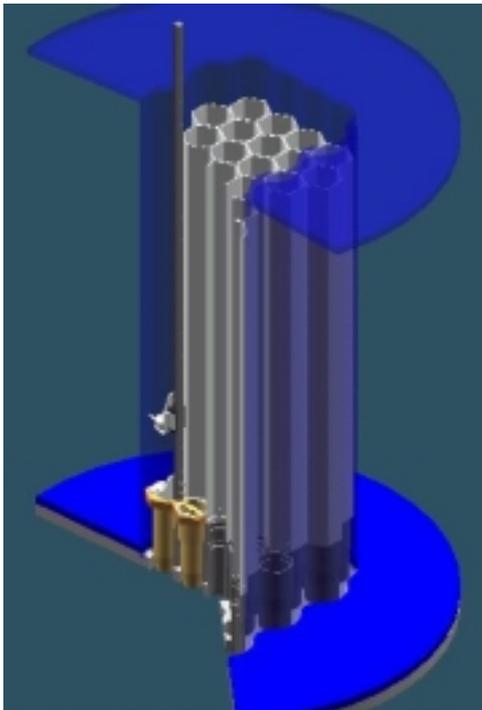
0.01mm

가

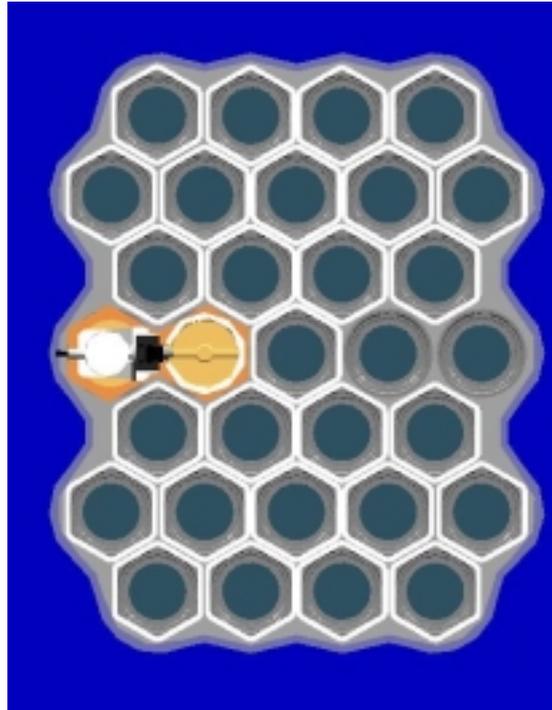
가

receptacle

1 2



1. 가



2. 가

(2) : 12m 가

(3) Straight edge: 가 0.006 mm/1m .

(4) Receptacle : Receptacle 2  
receptacle  
receptacle as -built receptacle  
/

(5) / 4  
/ adaptor  
가 가  
/ 가  
가 가  
/ 가  
3 13.3m

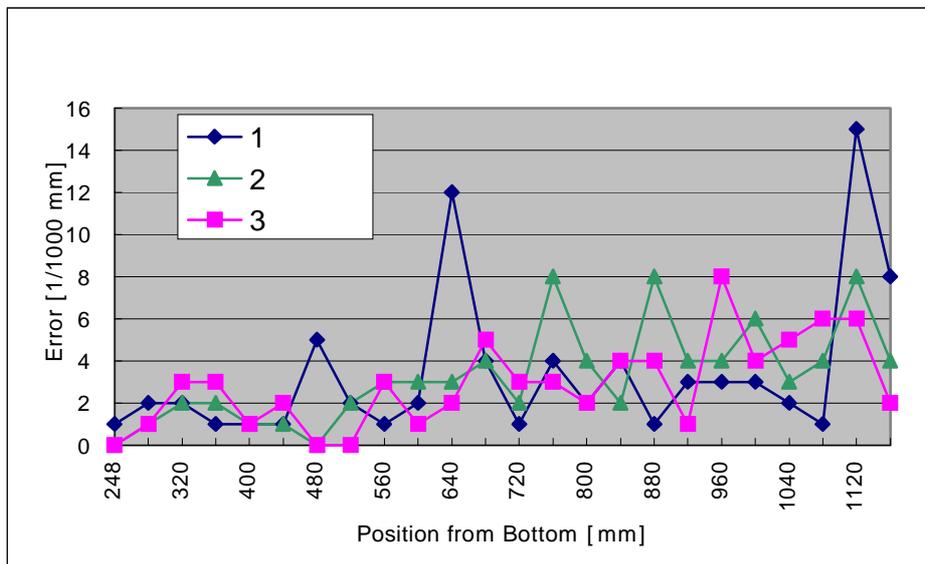
(6) : 13m  
Receptacle .

(7) :

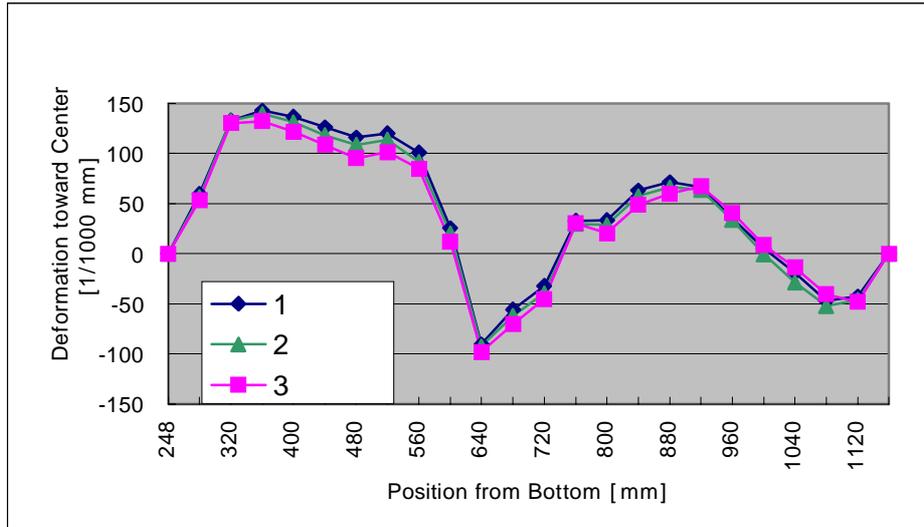
(8)

4.

2.2m  
receptacle  
3 1 3  
3 가 가  
4  
0.02mm 0.013mm  
0.1mm 가



3.



4.

5.

(1)

가

12m

(2)

가

0.02mm

(3)

4

2001. 11

/

shroud

가 가

2002

shroud

shroud,

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4. , HANTAP-05-OD-ROP-SI-56, 가 , 1, 1998. 6