

2003

## Standardization of the Time for the Execution of HANARO Start-up & Shutdown Procedures

150

가

### Abstract

For the standardization of the time to execute HANARO start-up & shutdown procedures, code names were assigned to the individual procedures and the work time were investigated. The data recorded by the operators during start-up & shutdown were statistically analyzed. The analysis results will be used for the standardization of start-up & shutdown procedures and it will be reflected in the procedure document.

### 1.

1995 2 (criticality) , (NTD) , 가 가

, 2002 8 2003 8

2.

, .

1 . 1

, , 1, 2, 3 , ,

9 .

1.

1.	1-가	2
	1-	5
	1-	12
	1-	7
	1-	11
2.	2-가	4
3.	3-가	1
	3-	3
	3-	9
	3-	2
4.	4-가	4
5. 1 (10kw 8MW)	5-가	2
	5-	3
	5-	2
	5-	14
	5-	1
6. 2 ( 8MW 13MW)	6-가	2
	6-	1
	6-	3
	6-	1
7. 3 (13MW )	7-가	2
	7-	1
	7-	9
	7-	1
	7-	1

8.	8-가	1
9.	9-가	1
	9-	2
	9-	1
	9-	5
	9-	1
	9-	1
	9-	2
	9-	2
	9-	3
	9-	1
	9-	1

3.

2002 8 2003 8

2 3 2002 8 2003 8

2.

	1-가	1-	1-	1-	1-	2-가	3-가	3-	3-	3-	4-가	5-가	5-
	11.00	8.00	10.00	10.00	10.00	10.00	8.00	15.00	15.00	10.00	66.00	9.00	19.00
	5.00	5.00	7.00	6.00	7.00	6.00	4.00	6.00	5.00	5.00	44.00	4.00	7.00
	6.06	5.76	9.18	8.12	7.76	8.06	5.24	10.76	9.82	6.00	53.06	5.65	13.71
	2.08	1.15	1.33	1.54	1.15	1.48	0.90	3.38	2.60	1.66	7.21	1.50	3.74
	5-	5-	5-	6-가	6-	6-	6-	7-가	7-	7-	7-	7-	8-가
	16.00	203.00	0.00	132.00	10.00	56.00	19.00	28.00	3.00	97.00	10.00	10.00	2.00
	8.00	57.00	0.00	9.00	5.00	15.00	0.00	9.00	1.00	40.00	6.00	6.00	2.00
	11.65	95.47	0.00	25.94	7.47	29.82	1.12	12.82	1.59	61.41	7.59	7.53	2.00
	2.47	35.81	0.00	30.25	1.91	13.27	4.61	4.64	0.62	15.09	1.23	1.28	0.00

\* 17

( : )

3.

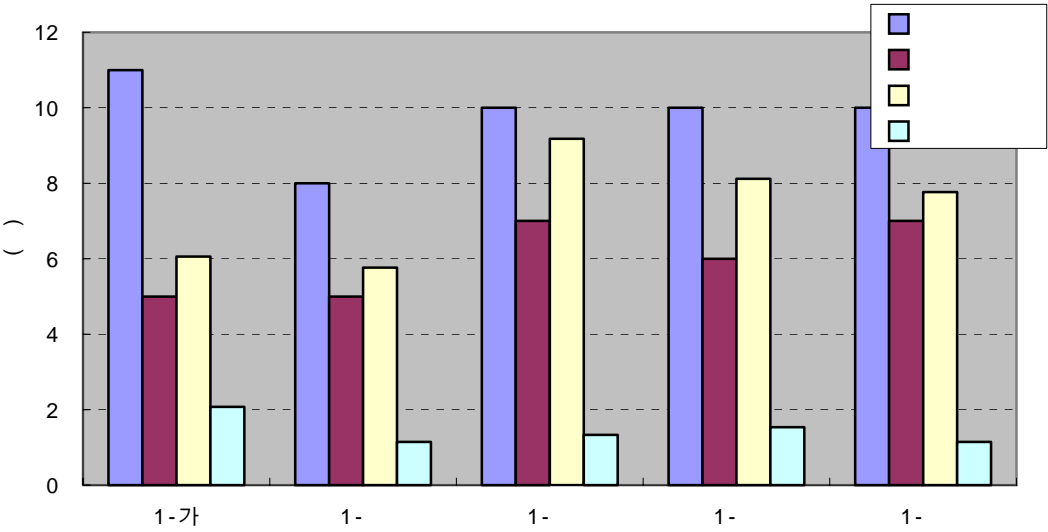
	9-가	9-	9-	9-	9-	9-	9-	9-	9-	9-	9-
	3.00	8.00	3.00	22.00	3.00	42.00	5.00	3.00	5.00	5.00	5.00
	1.00	4.00	2.00	10.00	2.00	24.00	2.00	2.00	3.00	0.00	4.00
	2.00	4.94	2.24	13.88	2.06	29.94	3.06	2.65	3.53	1.71	4.82
	0.35	0.97	0.44	4.04	0.24	4.51	0.83	0.49	0.80	2.20	0.39

\* 17 ( : )

3.1

1

. (CRT), ,  
, (RPS), (RRS)  
, 40 , 34  
, 37 .  
2  
가 .



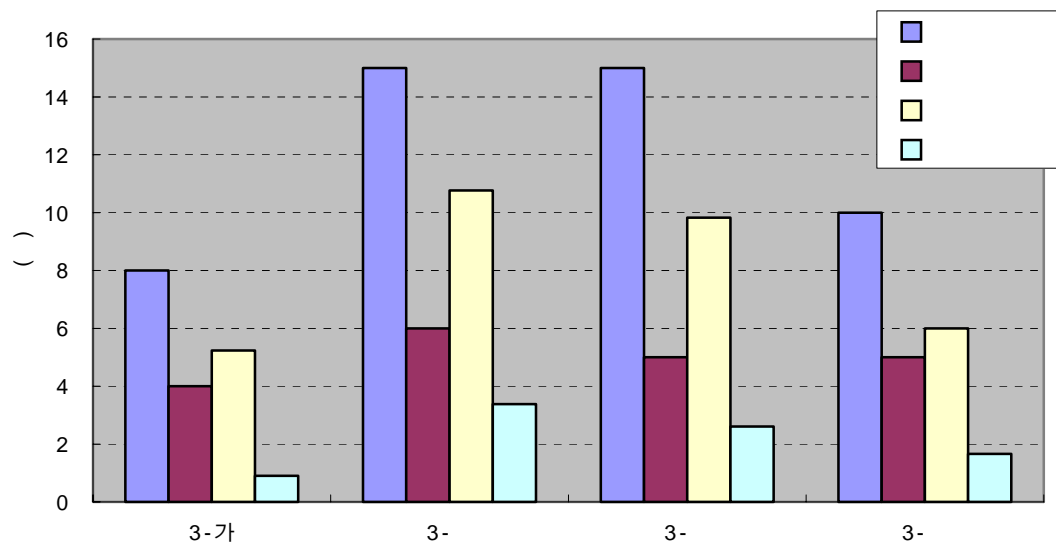
1.

3.2

2

. 가  
, ,  
10 , 6 , 8 .

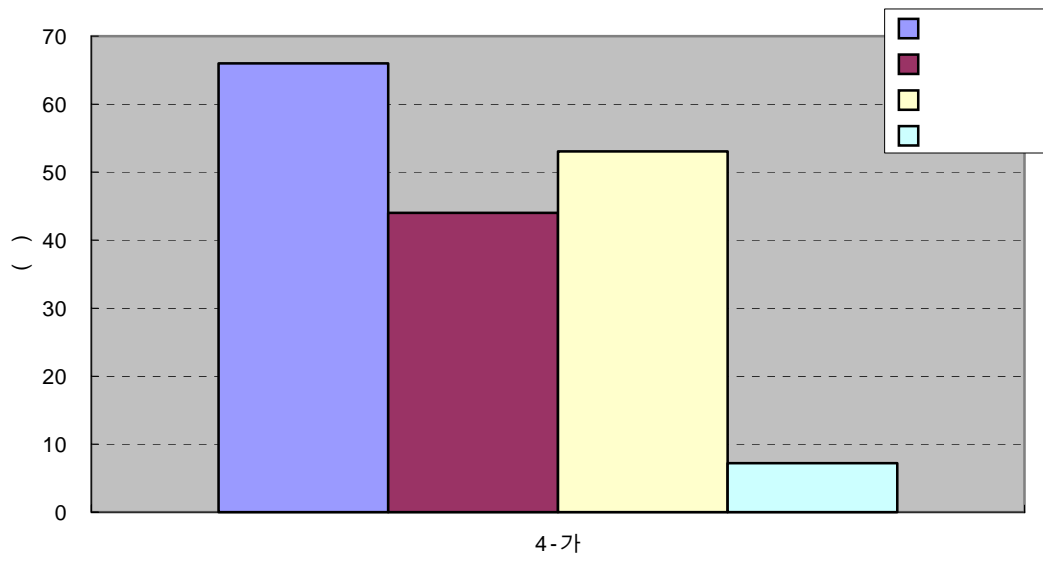




3.

3.4

4 . , (10 kW)  
 , 66 , 44 ,  
 53 . 7 . 가  
 가



4.

### 3.5 1 (10 kW ~ 8 MW)

5 1 (10 kW~8 MW)

10 kW 8 MW

227 , 90 ,

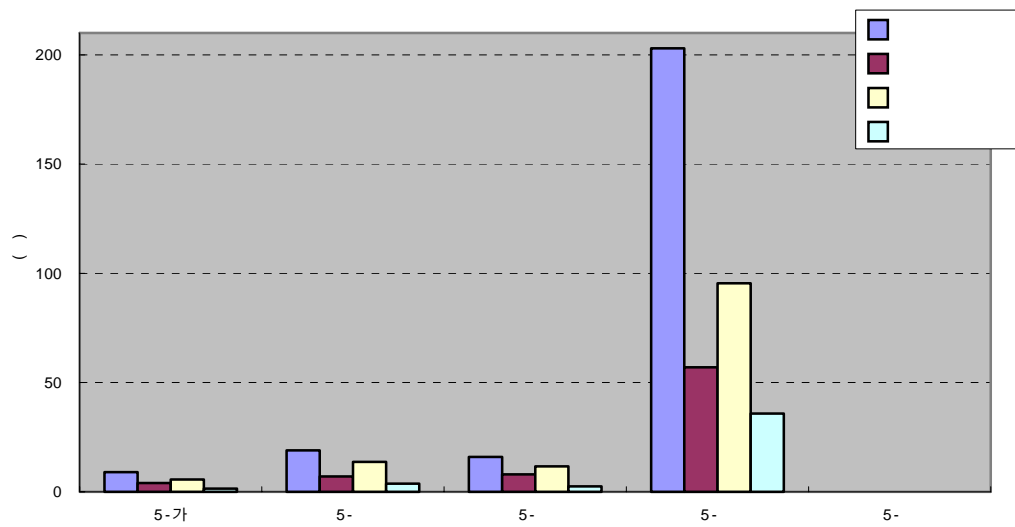
127 . 35 . 가

가 . 가

가 (13 ) 137 , 90 ,

111 . 15 17

.



5. 1 (10 kW ~ 8 MW)

### 3.6 2 (8 MW ~ 13 MW)

6 2 (8 MW~13 MW)

8 MW 13 MW

167 , 31 , 64

33 가

가 1 , ,

가

(6 ) 49 , 33 , 42

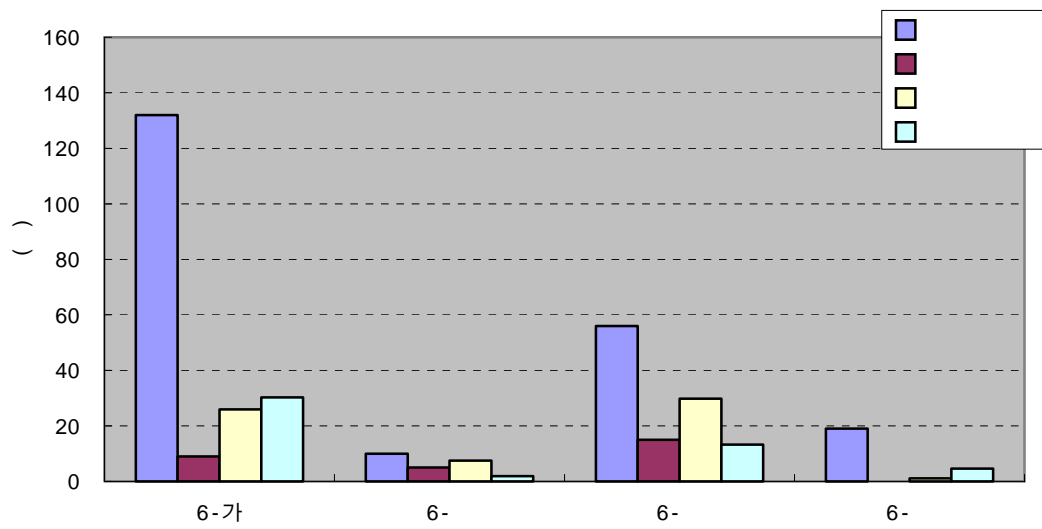
6 , (4 ) 92 , 31 , 62

31 ,

가 ,

가



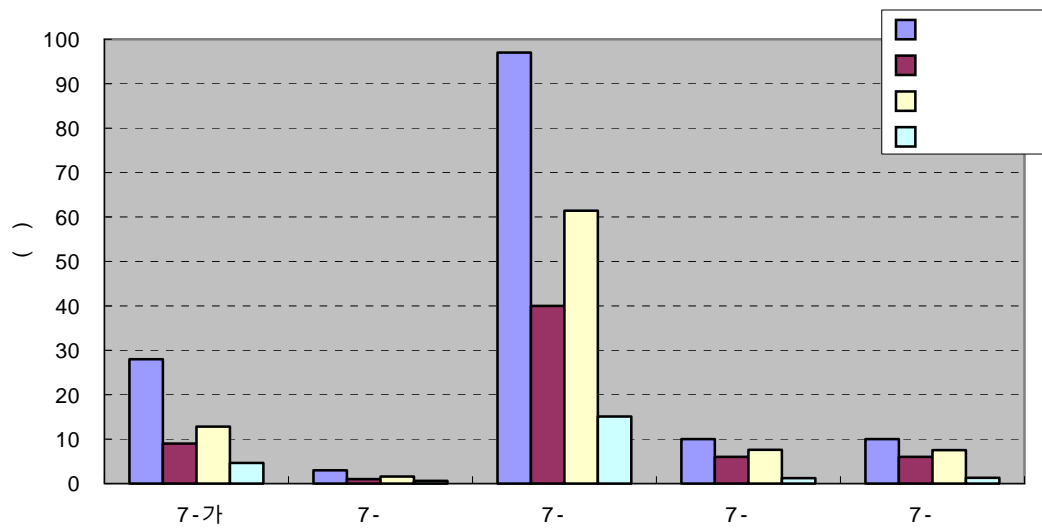


6. 2 (8 MW ~ 13 MW)

3.7 3 (13 MW ~ )

7 3 (13 MW~ )  
 13 MW 24 MW  
 125 , 65 ,  
 91 . 17 가

가  
 (11 ) 122 , 65 , 87  
 18 , (6 ) 125 , 85 ,  
 99 15 .

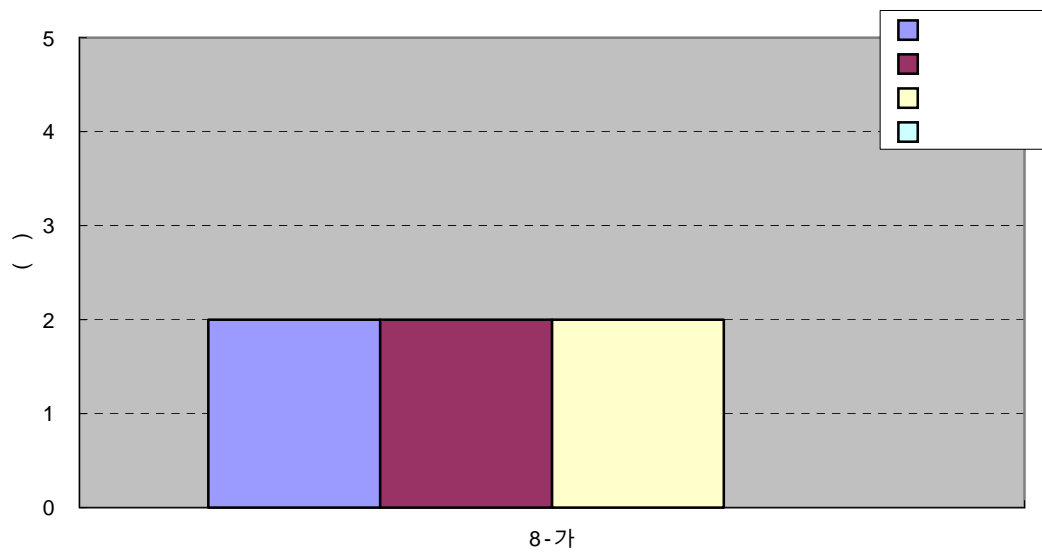


7. 3 (8 MW ~ )

3.8

8

2



8.

### 3.9

9

가

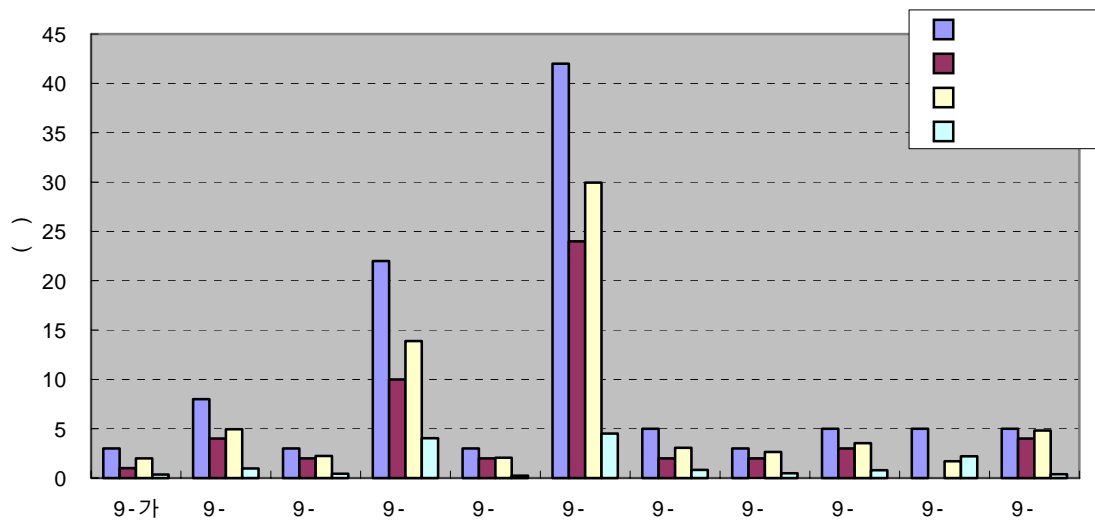
71

가

7

84

61



9.

### 4.

4

24 MW

627

321

414

가

282

68 %

4

(5~7)

가

가

가 17

9 가

508

321

389

가

(5 )

414

321 , 369 , 36 .  
 ( 4 ) 508 , 341 ,  
 415 , 76 .  
 , 가  
 ,  
 .  
 .  
 84 , 61 , 71  
 , 7  
 , 가 .

4.

	1	40	34	36.88	2.12
	2	10	6	8.06	1.48
	3	37	23	31.82	4.29
	4	66	44	53.06	7.21
	5	227	90	126.47	35.10
	6	167	31	64.35	33.32
	7	125	65	90.94	17.40
	8	2	2	2.00	0.00
				413.58	
	9	84	61	70.82	6.82
				70.82	

\*( : )

5.

- 1) 6 10 ,  
 7 .
- 2) 1 15 .
- 3) (5~7) , 가  
 ,
- 4) 1) 2) ,  
 가 .

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1. , “ 2002 ,” KAERI/MR-395/2002, , 2003. 1.
2. , “ / ,”  
HAN-RO-CR-1010-02-032, , 2002. 8.