

This paper introduces an analysis framework and procedure for the support of cognitive error analysis of emergency tasks in nuclear power plants. The framework provides a new perspective in the utilization of error factors into error prediction. The framework can be characterized by two features. First, error factors that affect the occurrence of human error are classified into three groups, ‘task characteristics factors (TCF)’, ‘situation factors (SF)’, and ‘performance assisting factors (PAF)’, and are utilized in the error prediction. This classification aims to support error prediction from the viewpoint of assessing the adequacy of PAF under given TCF and SF. Second, the assessment of error factors is made in the perspective of the performance of each cognitive function. Through this, error factors assessment is made in an integrative way not independently. Furthermore, it enables analysts to identify vulnerable cognitive functions and error factors, and to obtain specific error reduction strategies. Finally, The framework and procedure was applied to the error analysis of the ‘bleed and feed operation’ of emergency tasks.

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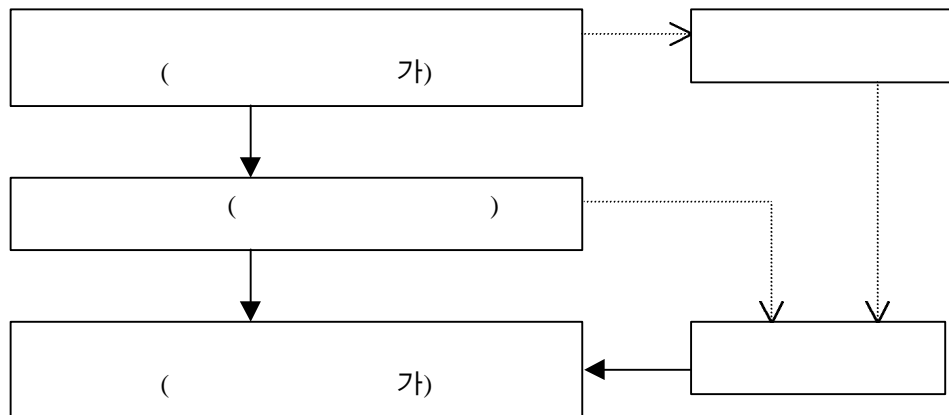
. , MERMOS ATHEANA 가 PSA  
 . MERMOS ,  
 가 , (safety requirement)  
 (HF mission) ,  
 , 3 가 , S (Strategy), D (Diagnosis), A (Action)  
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 . 20  
 200  
 . PSA  
 가  
 가 .  
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 , ( )  
 ) 가  
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- : / , , ,
- : (Time-urgent situation: ),
- : , , .
- : , , / , , , .

### III.

1 (SF), (TCF), (PAF) 가



1.

1.

(SF) , 가

가. ( , , , )

, 가



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가 ,

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, 가 .

2.

가

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. HTA (Hierarchical Task Analysis), GMTA (Goal-Means Task Analysis)

가 ,

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, 가 .

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(vs.) , .

3.

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가 .

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(QUESTIONNAIRE)

가 가 .

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가 .

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가 , (TCF)

(SF) 가 ,

(PAF) ,

가 가 , 가  
가 ( ) .  
, 가  
. 가 1 .  
가  
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가 , , ‘ , ,  
, 가 (initiation) ,  
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1.

(QUESTIONNAIRE)		
① / (Activation & Detection) : 가 가? 가 가?		
/	/	
② (Observation) : 가? 가 ? 가 ?		
, ,	- -	
③ (Situation Assessment) : 가? 가 ?		
	- -	
④ / (Planning & Decision) : 가? 가 가? 가?		

<p> , </p> <p> . </p>	<p> / </p> <p> - </p> <p> - </p>	
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IV.

‘ ( ) ’

가 가 .

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1.

‘III. ’ ,

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- : PSA ET ‘

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’. (low SG water level: 38.5 % WR)

(23.4 % WR)가 .

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① ‘ ,

② ‘ ,

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: 10 , PORV

SDS .

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가 . ‘ -05,

- -06, HR-3
- / : ‘ ( , ..) ’.
- : MCR,

2.

2 ‘ , ‘RCS ’가 , ‘ 가 , 가

2. ‘ ,

-05 (LOAF)	
<p>~</p> <p>8. , 1 S/G</p> <p>RCS 가</p> <p>O 1 :</p> <p>- S/G : 2%(WR) ,</p> <p>- S/G 1.26E05 kg/hr (35 LPS)</p> <p>O RCS Tc 가 : 6 °C</p> <p>~</p>	<p>~</p> <p>8. O S/G 가 2%(WR) S/G 1.26E05 kg/hr (35 LPS)</p> <p>06(HR-3)</p> <p>O RCS Tc 가 6 °C , -06(HR-3)</p>
-03 (HR-3)	
<p>~</p> <p>2.</p> <p>3.</p> <p>~</p>	

3.

, 가 3

3. ‘ ,

		가	가
/	-05, Step 8	- : - : . / : - : . : . : . : 2 1 , / 가	- /
	-05, Step 8	- : : 3 - : . : - : . : . : . : 2 1 ,	...
	-05, Step 8	- : - : . : - : . : . : 2 1 ,	...
	-05, Step 8	- : - : . : . : - : . : , / . : 2 1 , . : (> or <)	- -

V.

‘ , 가

