

## **KHNPDCDRAIsPEm Resource**

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**From:** Ward, William  
**Sent:** Friday, July 24, 2015 5:00 PM  
**To:** 'apr1400rai@khnp.co.kr'; KHNPDCDRAIsPEm Resource; 'Chang, Harry'; 'Yunho Kim (yshh8226@gmail.com)'; Mannon, Steven (steven.mannon@aecom.com)  
**Cc:** Ciocco, Jeff; Lee, Samuel; Olson, Bruce; DeMarshall, Joseph; Junge, Michael  
**Subject:** APR1400 Design Certification Application RAI 112-8015 (13.5.2.1 Operating and Emergency Operating Procedures)  
**Attachments:** APR1400 DC RAI 112 COLP 8015.pdf

KHNP,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs. However, KHNP requests, and we grant, 60 days to respond to the RAI questions. We may adjust the schedule accordingly.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

**William R. Ward, P.E.**  
**Senior Project Manager**  
**U.S. Nuclear Regulatory Commission**  
**m/s T6-D38M**  
**Washington, DC, 20555-0001**  
NRO/DNRL/Licensing Branch 2  
ofc T6-D31  
ofc (301) 415-7038 fax (301) 415-6350



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**From:** Ward, William

**Created By:** William.Ward@nrc.gov

**Recipients:**

"Ciocco, Jeff" <Jeff.Ciocco@nrc.gov>  
Tracking Status: None  
"Lee, Samuel" <Samuel.Lee@nrc.gov>  
Tracking Status: None  
"Olson, Bruce" <Bruce.Olson@nrc.gov>  
Tracking Status: None  
"DeMarshall, Joseph" <Joseph.DeMarshall@nrc.gov>  
Tracking Status: None  
"Junge, Michael" <Michael.Junge@nrc.gov>  
Tracking Status: None  
"apr1400rai@khnp.co.kr" <apr1400rai@khnp.co.kr>  
Tracking Status: None  
"KHNPDCDRAIsPEM Resource" <KHNPDCDRAIsPEM.Resource@nrc.gov>  
Tracking Status: None  
"Chang, Harry" <hyunseung.chang@gmail.com>  
Tracking Status: None  
"Yunho Kim (yshh8226@gmail.com)" <yshh8226@gmail.com>  
Tracking Status: None  
"Mannon, Steven (steven.mannon@aecom.com)" <steven.mannon@aecom.com>  
Tracking Status: None

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# REQUEST FOR ADDITIONAL INFORMATION 112-8015

Issue Date: 07/24/2015  
Application Title: APR1400 Design Certification Review – 52-046  
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.  
Docket No. 52-046  
Review Section: 13.05.02.01 - Operating and Emergency Operating Procedures  
Application Section: 13.5.2.1 / 13.5.1.1

## QUESTIONS

### 13.05.02.01-2

APR1400 Design Control Document (DCD), Tier 2, Chapter 13, “Conduct of Operations,” Section 13.5, “Plant Procedures”

## REQUIREMENTS

Title 10 CFR 50.34(a)(6) and (10) and 50.34(b)(6)(iv) and (v) specify the requirement for an applicant to have plans for the conduct of normal operations and coping with emergencies. The review of these procedures is conducted following Chapter 13 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," (SRP).

The paragraph under Section 13.5, “Plant Procedures,” and the associated COL information item, COL 13.5(1), under Section 13.5.3, “Combined License Information,” both state:

“The COL applicant is to describe the **administrative and operating procedures** that the operating organization (plant staff) use to **provide reasonable assurance that routine operating, off-normal, and emergency activities are conducted in a safe manner.**”

Standard Review Plan (SRP) Section 13.5.1.1, “Administrative Procedures – General,” Subsection I, specifically describes Administrative Procedures as “...procedures that provide for administrative control over safety-related activities for operation of the facility.”

SRP Section 13.5.2.1, “Operating and Emergency Operating Procedures,” Subsection I, specifically **describes Operating Procedures as “...procedures that will be used by the operating organization (plant staff) to ensure that routine operating, off-normal, and emergency activities are conducted in a safe manner.”**

## ISSUE

- Administrative Procedures and Operating Procedures are written to accomplish different objectives. Contrary to the cited statement above from Sections 13.5 and 13.5.3 of the DCD, **Administrative Procedures are not used to ensure that routine operating, off-normal, and emergency activities are conducted in a safe manner.** In accordance with SRP Section 13.5.2.1, Subsection I, **Operating Procedures are used to accomplish this objective.**
- Contrary to the cited text above from Sections 13.5 and 13.5.3 of the DCD, **Operating Procedures are not used to “provide reasonable assurance”** that routine operating, off-

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normal, and emergency activities are conducted in a safe manner. In accordance with SRP Section 13.5.2.1, Subsection I, **Operating procedures are used to “ensure”** that routine operating, off-normal, and emergency activities are conducted in a safe manner.

### INFORMATION NEEDED

Clarify the distinction between Administrative Procedures and Operating Procedures, and explain use of the phrase “provide reasonable assurance” in place of the word “ensure.”

Provide any changes necessary to ensure the completeness and accuracy of the information in Section 13.5, “Plant Procedures,” and the associated COL information item, COL 13.5(1), in Section 13.5.3, “Combined License Information” for the Administrative and Operating Procedures.

### 13.05.02.01-3

APR1400 Design Control Document (DCD), Tier 2, Chapter 13, “Conduct of Operations,” Section 13.5, “Plant Procedures”

### REQUIREMENTS

The paragraph under Section 13.5, “Plant Procedures,” states:

“The COL applicant is to **provide a brief description** of the nature and content of the procedures and a schedule for the preparation of appropriate written **administrative procedures** (Reference 1, 2).”

The associated COL information item, COL 13.5(1), under Section 13.5.3, “Combined License Information,” states:

“The COL applicant is to **provide a brief description** of the nature and content of the procedures and a schedule for the preparation of appropriate written **administrative procedures** (Reference 1 through 3).”

Standard Review Plan (SRP) Section 13.5.1.1, “Administrative Procedures – General,” Subsection I, states: “The **application should describe** the nature and content of procedures ...”

SRP Section 13.5.2.1, “Operating and Emergency Operating Procedures,” Subsection I, states: “The **SAR should provide descriptions** of the content and development process for procedures...”

### ISSUE

Use of the word “**brief**” in the cited text above from Sections 13.5 and 13.5.3 of the DCD, as it pertains to descriptions associated with the content of procedures, is vague, and has the potential to negatively impact the quality of COL applicant information item submittals.

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- The cited text above from Sections 13.5 and 13.5.3 of the DCD, **only addresses Administrative Procedures**. There is no reference to Operating Procedures. Administrative and Operating Procedures are the subject of the associated paragraph in each of these sections.
- The **parenthetical “Reference” information** in the cited text above from Sections 13.5 and 13.5.3 of the DCD, **is different**. Given that the associated paragraph in each of these sections provides the same information, it is unclear as to why there would be a difference in the parenthetical “References” identified.

### INFORMATION NEEDED

Explain: (1) use of the word “brief” as it pertains to descriptions associated with the content of procedures, (2) exclusion of the Operating Procedures from the cited text, and (3) the disparity in the parenthetical “References” identified.

Provide any changes necessary to ensure the completeness and accuracy of the information in Section 13.5, “Plant Procedures,” and the associated COL information item, COL 13.5(1), in Section 13.5.3, “Combined License Information,” for the Administrative and Operating Procedures.

### 13.05.02.01-4

APR1400 Design Control Document (DCD), Tier 2, Chapter 13, “Conduct of Operations,” Section 13.5, “Plant Procedures”

### REQUIREMENTS

The paragraph under Section 13.5.1, “Administrative Procedures,” and the associated COL information item, COL 13.5(2), under Section 13.5.3, “Combined License Information,” both state:

“The COL applicant is to develop a description of administrative procedures that provide administrative control over activities that are **important to safety** for operation of the facility.”

Standard Review Plan (SRP) Section 13.5.1.1, “Administrative Procedures – General,” Subsection I, states: “This SAR section should describe the procedures that provide for administrative control over **safety-related** activities for operation of the facility.”

### ISSUE

- Per 10 CFR 50.2, “Definitions,” Safety-Related means those structures, systems, and components that are relied upon to remain functional during and following design basis events to assure:
  - (1) The integrity of the reactor coolant pressure boundary,
  - (2) The capability to shut down the reactor and maintain it in a safe shutdown condition; or

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- (3) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the applicable guideline exposures set forth in 10 CFR 50.34(a)(1) or 10 CFR 100.11, as applicable.

Per 10 CFR 50, Appendix A, “General Design Criteria for Nuclear Power Plants,” “Introduction,” Important to Safety means structures, systems, and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public.

Contrary to the cited statement above from Sections 13.5.1 and 13.5.3 of the DCD, **Administrative Procedures do not provide administrative control over activities that are Important to Safety.** In accordance with SRP Section 13.5.1.1, Subsection I, **Administrative Procedures provide for administrative control over “Safety-Related” activities.**

The cited text above from Sections 13.5.1 and 13.5.3 of the DCD, states that the COL applicant is to develop a description of the Administrative Procedures. The **requirement to develop a description of the Administrative Procedures has already been delineated in COL information item 13.5(1).** COL 13.5(2) and COL 13.5(1) are asking for the same information relative to the Administrative Procedures. **A COL information item, similar to COL 13.5(5) for the COL applicant to provide a program for development and implementation of the Emergency Operating Procedures, has not been provided for the Administrative Procedures.**

### INFORMATION NEEDED

Explain the use of “Important-to-Safety” instead of “Safety-Related” in the cited text from Sections 13.5.1 and 13.5.3 of the DCD. Provide a COL information item for the COL applicant to provide a program for development and implementation of the Administrative Procedures.

Provide any changes necessary to ensure the completeness and accuracy of the information in Section 13.5.1, “Administrative Procedures,” and the associated COL information item, COL 13.5(2), in Section 13.5.3, “Combined License Information,” for the Administrative Procedures.

### 13.05.02.01-5

APR1400 Design Control Document (DCD), Tier 2, Chapter 13, “Conduct of Operations,” Section 13.5, “Plant Procedures”

### REQUIREMENTS

The paragraph under Section 13.5.2.1.2, “Operating Procedure Program,” states:

“The COL applicant is to provide a **program for developing** operating and shutdown procedures (COL 13.5(4), COL 13.5(7)).”

Associated COL information items COL 13.5(4) and COL 13.5(7), under Section 13.5.3, “Combined License Information,” state:

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COL 13.5(4):

“The COL applicant is to provide a **program for developing** operating procedures.”

COL 13.5(7):

“The COL applicant is to provide a **program for developing** shutdown procedures.”

Standard Review Plan (SRP) Section 13.5.2.1, “Operating and Emergency Operating Procedures,” Subsection I.2, states: “The **staff will review the applicant’s program for development and implementation** of the operating procedures.”

SRP Section 13.5.2.1, Subsection I.1, identifies Operating Procedure classifications. Procedures that provide instructions for shutdown operations fall under the General Plant Procedures classification of Operating Procedures. Subsection I.1.B describes General Plant Procedures as: “Procedures that provide instructions for the integrated operations of the plant, e.g., startup, shutting down, **shutdown**, power operation and load changing, process monitoring, and fuel handling.”

### ISSUE

- The cited text above from Sections 13.5.2.1.2 and 13.5.3 of the DCD, **only states that the COL applicant is to provide a program for development** of the Operating and Shutdown Procedures. **The implementation aspect of the program has not been addressed.** In accordance with SRP Section 13.5.2.1, Subsection I.2, the staff reviews the COL applicant’s program for both the development and implementation of these procedures. Note that both the development and implementation aspects of the program for the Emergency Operating Procedures have been addressed in Section 13.5.2.1.3 and associated COL information item COL 13.5(5) in Section 13.5.3.
- The cited text above from Sections 13.5.2.1.2 and 13.5.3 of the DCD, appears to make a distinction between Operating Procedures and Shutdown Procedures. **It is unclear whether the reference to Shutdown Procedures in these sections is intended to identify a set of shutdown procedural instructions other than what is described in SRP Section 13.5.2.1, Subsection I.1.B.**

### INFORMATION NEEDED

Explain: (1) exclusion of the implementation aspect of the Operating Procedure program that is to be provided by the COL applicant, and (2) whether a set of shutdown procedural instructions other than what is described in SRP Section 13.5.2.1, Subsection I.1.B, exists.

Provide any changes necessary to ensure the completeness and accuracy of the information in Section 13.5.2.1.2, “Operating Procedure Program,” and associated COL information items, COL 13.5(4) and COL 13.5(7), in Section 13.5.3, “Combined License Information,” for the Operating Procedures.



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### 13.05.02.01-6

APR1400 Design Control Document (DCD), Tier 2, Chapter 13, "Conduct of Operations," Section 13.5, "Plant Procedures"

#### REQUIREMENTS

The paragraph under Section 13.5.2.1, "Operating and Emergency Operating Procedures," states:

"This subsection describes primarily the procedures that licensed operators perform in the MCR, which are to be developed by the COL applicant. Categories such as procedure classification, operating procedure program, and emergency operating procedure program are included but **are not necessarily the basis for classifying these procedures.**"

Standard Review Plan (SRP) Section 13.5.2.1, "Operating and Emergency Operating Procedures," Subsection I.1, states: "The SAR or other submittal should describe the different classifications of procedures the operators will use in the control room and locally in the plant for plant operations." Examples of classifications provided in Subsection I.1 of the SRP include System Procedures, General Plant Procedures, Off-Normal Condition Procedures, Emergency Operating Procedures, and Alarm Procedures.

#### ISSUE

- The cited text above from Section 13.5.2.1 of the DCD is **confusing and ambiguous with respect to intent**. It is unclear what is meant by: (1) Categories such as procedure classification are included but are not necessarily the basis for classifying these procedures, (2) Categories such as operating procedure program are included but are not necessarily the basis for classifying these procedures, or (3) Categories such as emergency operating procedure program are included but are not necessarily the basis for classifying these procedures.

#### INFORMATION NEEDED

Clarify the information in Section 13.5.2.1 of the DCD.

Provide any changes necessary to ensure the completeness and accuracy of the information in Section 13.5.2.1, "Operating and Emergency Operating Procedures."

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### 13.05.02.01-7

APR1400 Design Control Document (DCD), Tier 2, Chapter 13, "Conduct of Operations," Section 13.5, "Plant Procedures"

#### REQUIREMENTS

The paragraph under Section 13.5.2.1.1, "Procedure Classification," states:

"Each applicant's procedures do not necessarily conform precisely to the same classification because the objective is to provide reasonable assurance that procedures are available to the plant staff to accomplish the functions in NRC RG 1.33."

Standard Review Plan (SRP) Section 13.5.2.1, "Operating and Emergency Operating Procedures," Subsection I.1, states: "It is not necessary that each applicant's procedures conform precisely to the same classification since the objective is to ensure that procedures will be available to the plant staff to accomplish the functions contained in the listing of Regulatory Guide 1.33. For example, some licensees prefer a classification of abnormal operating procedures, whereas others may use off-normal condition procedures."

#### ISSUE

- Contrary to the cited text above from Section 13.5.2.1.1 of the DCD regarding applicant procedural conformance relative to classification, **the objective, in accordance with SRP Section 13.5.2.1, Subsection I, is to "ensure" the availability of procedures to accomplish the functions contained in the listing of RG 1.33. "Providing reasonable assurance" is not the objective.**

#### INFORMATION NEEDED

Explain the use of the words "provide reasonable assurance" in place of the word "ensure."

Provide any changes necessary to ensure the completeness and accuracy of the information in Section 13.5.2.1.1, "Procedure Classification."

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### 13.05.02.01-8

APR1400 Design Control Document (DCD), Tier 2, Chapter 13, "Conduct of Operations," Section 13.5, "Plant Procedures"

#### REQUIREMENTS

The following references are listed among those identified in Standard Review Plan (SRP) Sections 13.5.1.1, "Administrative Procedures – General," and 13.5.2.1, "Operating and Emergency Operating Procedures," and are applicable to Section 13.5, "Plant Procedures," of the APR1400 DCD. Accordingly, they should be listed in Section 13.5.4, "References."

- NUREG-0737, Supplement No. 1, "Clarification of TMI Action Plan requirements: Requirements for Emergency Response Capability"
- 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"
- 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants"

#### ISSUE

The identified references have been excluded from Section 13.5.4, "References":

#### INFORMATION NEEDED

Explain exclusion of the references from Section 13.5.4 of the DCD.

Provide any changes necessary to ensure the completeness and accuracy of the information in Section 13.5.4, "References."