

Analysis of the Enforcement Discretion System for Operating NPPs in the USA

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1. Introduction

The Notice of Enforcement Discretion (NOED) process in the U.S. Nuclear Regulatory Commission (NRC)'s Nuclear Regulatory System is designed to address unanticipated temporary noncompliance with license conditions and Technical Specification (TS) only [1, 2]. On occasion, circumstances may arise where a licensee's compliance with the TS Limiting Condition for Operation (LCO) or with other license conditions would involve an unnecessary plant transient or performance of testing, inspection, or system realignment that is inappropriate with the specific plant conditions, or unnecessary delays in plant startup without a corresponding health and safety benefit. In these circumstances, the NRC staff may choose not to enforce the applicable TS or other license condition. This NOED, will only be exercised if the NRC staff is clearly satisfied that the action is consistent with protecting the public health and safety.

In this study, the content and application practice of the NOED was analyzed. And then, the need and prerequisites for its adoption were suggested.

2. Analysis of the NOED System [1, 2]

2.1 Implementation Basis

The implementation basis of the NOED is addressed in Section VII.C of the "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy, NUREG-1600). The process and staff guidance of a NOED is described in the NRC Inspection Manual, Part 9900: Technical Guidance, "Operations - Notices of Enforcement Discretion," dated February 7, 2005.

2.2 Scope

An NOED can be granted for a power reactor at power, in startup, or in shutdown, provided the specific applicable criteria set forth below are met. It is not applicable to non-power or permanently shut-down reactors.

2.3 Criteria

NOEDs may be warranted only if compliance with a TS LCO or with other license condition would involve: (1) an unnecessary plant transient; or (2) performance of

testing, inspection, or system realignment that is inappropriate for the specific plant conditions; or (3) unnecessary delays in plant startup without a corresponding health and safety benefit; or (4) the potential for an unexpected plant shutdown during severe weather or other natural phenomena that could exacerbate already degraded electrical grid conditions and could have an adverse impact on the overall health and safety of the public.

2.4 Types of NOEDs

There are two types of NOEDs: (1) 'regular' NOEDs and (2) 'severe weather or other natural phenomena-related' NOEDs (severe-weather NOEDs). 'Regular' NOEDs are appropriate where forced compliance with the license would involve unnecessary transients that may affect the radiological health and safety of the public. Severe-weather NOEDs involve overall public health and safety considerations (e.g., potential impact on public health and safety because of power delivery challenges as opposed to only radiological safety considerations).

2.5 NOED Process

Typically, licensees request an NOED orally. An oral NOED request must be followed by a written request by the licensee within 2 working days, except in the case of severe weather NOEDs. Because the staff is required to inform the Commission expeditiously of granting a severe-weather NOED, a written NOED request must be provided within a few hours of the oral request. The process flow of the NOED is shown in Figure 1.

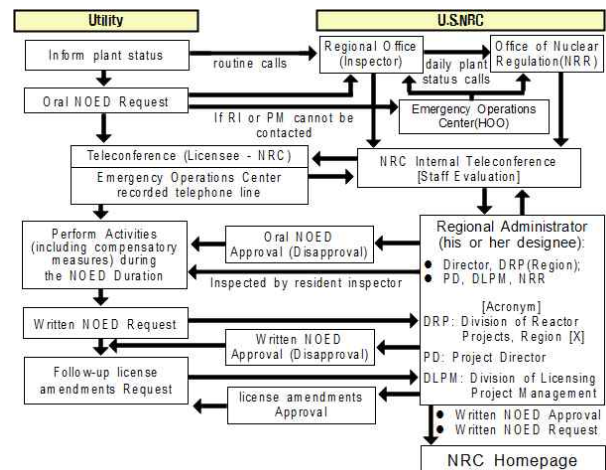


Figure 1 Flow chart of the NOED

2.6 Staff Evaluation

The NRC staff ensures that the licensee's oral and written requests for an NOED address the following:

1. The TS or other license conditions
2. The circumstances surrounding the situation
3. Information for the cause and proposed path to resolve the situation
4. The safety basis for the request
5. The justification for the duration of the noncompliance.
6. The condition and operational status of the plant
7. The status and potential challenges to off-site and on-site power sources.
8. The basis for the licensee's conclusion that the noncompliance will not be of potential detriment to the public health and safety.
9. The basis for the licensee's conclusion that the noncompliance will not involve adverse consequences to the environment.
10. A statement that the request has been approved by the facility organization that normally reviews safety issues.
11. The request must specifically address which of the NOED criteria for appropriate plant conditions is satisfied and how it is satisfied.
12. Licensee's commitment that the written NOED request will be submitted within 2 working days and the follow-up amendment will be submitted within 4 working days of verbally granting the NOED.
13. In addition to items 1-12 above, information for a severe-weather NOED request

3. Examples of NOED Issuance [3]

Totally 34 NOEDs, including 2 cases of disapproval, were surveyed and examples among them are shown in Table 1.

Table 1 Examples of NOED Issuance [3]

NOED No.	Plant Name	Con. Type Power(MWt) NSSS	Date of NOED Issuance	Tech. Specific.	Related System	NOED Duration	Follow-up license amendments
11-3-001	Monticello Nuclear Generating Plant	BWR-MARK 1,775 GE 3	2011/09/20 23:58	TS 3.8.1	Emergency Diesel Generator	5 days	NA
11-2-002	Catawba Nuclear Station Unit 1	PWR-ICECND 3,411 WEST 4LP	2011/02/25 16:55	TS 3.8.1	Emergency Diesel Generator	48 hours	NA
10-2-003	Catawba Nuclear Station Unit 1	PWR-ICECND 3,411 WEST 4LP	2010/07/20 15:00	TS 3.8.1	Emergency Diesel Generator	24 hours	NA
10-4-001	Callaway Plant Unit 1	PWR-DRYAMB 3,565 WEST 4LP	2010/04/02 17:35	TS 3.8.1	Emergency Diesel Generator	48 hours	NA
00-3-01	Kewaunee Power Station	PWR-DRYAMB 1,772 WEST 2LP	2009/01/23 15:42	TS 3.7.a.7	Emergency Diesel Generator	14 days	license amendments
03-4-001	Columbia Generating Station	BWR-MARK 2 3,486 GE 5	2003/02/16 07:15	TS 3.8.1	Emergency Diesel Generator	11 days	NA
02-6-002	Hope Creek Generating Station	BWR-MARK 1 3,840 GE 4	2002/12/13 15:30	TS 4.9.1	Emergency Diesel Generator	Until license amendments will be issued	license amendments
02-01-01	Calvert Cliffs Unit 2	PWR-DRYAMB 2,737 CE	2002/01/26 22:00	TS 3.8.1	Emergency Diesel Generator	6 days	NA
01-3-002	Prairie Island Nuclear Generating Plant	PWR-DRYAMB 1,677 WEST 2LP	2001/04/13 14:30 2001/04/16 14:30	TS LCD 3.7	Emergency Diesel Generator	3 days	NA
01-1-001	Hope Creek Generating Station	BWR-MARK 1 3,840 GE 4	2001/01/10 07:00	TS 3.8.1.1	Emergency Diesel Generator	48 hours	NA
05-01-01	Seabrook Station Unit 1	PWR-DRYAMB 3,546 WEST 4LP	2005/11/30 02:20	TS LCD 3.8.3.1	Instrument Power Supply Inverter	18 hours	license amendments
02-01-03	Susquehanna Unit 1	BWR-MARK 2 3,952 GE 4	2002/10/05 14:00	TS 3.8.1	Start-up Transformer	4 days	NA

Within 4 working days of oral granting of the licensee's NOED request, the licensee must submit a follow-up exigent license amendment request in accordance with 10 CFR 50.91, unless the staff agrees, in advance of granting the NOED, that a follow-up license amendment is not needed. Generally, permanent, as opposed to temporary (or one-time), license amendments should be requested, either in lieu of or as follow-up to an NOED to resolve plant conditions or situations.

4. Discussion

Through the above analysis, it was found that the NOED would contribute to maintaining more stable operational plant states than those resulted from the compliance with the TS LCO in a special plant's condition, because it is a useful institutional device to avoid an unnecessary plant transient or performance of testing, inspection, or system realignment, or unnecessary delays in plant startup without a corresponding health and safety benefit. Therefore, the introduction of the NOED into Korea would be worthwhile. For its adoption, prerequisites could be considered in legal and technical aspects. In the legal aspect, it is necessary to link NOED and domestic regulatory system with detailed regulatory process and acceptance criteria. In the technical aspect, licensee must have capability to demonstrate that granting any NOED has no adverse impact on public health and safety or the environment. Also, regulatory body must have capability to confirm the validity of licensee's NOED requests. The results of this research are expected to be helpful for the improvement of domestic nuclear regulatory system.

5. Conclusions

The NOED process and examples for operating NPPs in the USA were analyzed, and then the need and prerequisites for its adoption were suggested. The introduction of the NOED will be helpful to upgrade domestic nuclear regulatory system with the new temperate flexibility.

REFERENCES

- [1] U.S. Nuclear Regulatory Commission, General Statement of Policy and Procedures for NRC Enforcement Actions, Section VII C. 'Exercise of Discretion for an Operating Facility,' NUREG-1600, 2004
- [2] NRC Inspection Manual, Part 9900: Technical Guidance, "Operations - Notices of Enforcement Discretion," February 7, 2005
- [3] S. K. Ahn, and et al, Analysis of the Enforcement Discretion System for Regulating NPP in the USA (Working material not yet published), KINS, 2012