

POLICY ISSUE
(Notation Vote)

April 25, 2001

SECY-01-0071

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations

SUBJECT: EXPANDED NRC PARTICIPATION IN THE USE OF THE INTERNATIONAL
NUCLEAR EVENT SCALE

PURPOSE:

To report experience from the NRC's limited participation in the International Nuclear Event Scale (INES) and to consult with the Commission concerning future participation.

SUMMARY:

The INES provides a consistent means to convey the significance of a wide range of reactor and materials events to the international community. The NRC has participated in the INES in a very limited manner since December 1992. Since that time, the scope and level of worldwide participation in the INES program has expanded, primarily as the result of efforts by the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency (NEA) of the Organization for Economic Cooperation and Development.

This paper summarizes the staff's experience with the INES and makes a positive recommendation regarding an increased level of participation. The staff is recommending that

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all events reported to NRC be screened using the INES scale, but only those events rated at *level 2* or higher on the INES scale be reported to the IAEA, unless another member country specifically requests the rating of a particular event. Events which do not meet these criteria would not be documented nor reported to IAEA on the INES rating form. Based on our experience with the INES we expect approximately one reactor event and no more than five materials events to reach this threshold on an annual basis. This is the first time that the staff has proposed to rate fuel cycle and other materials events using the INES. The screening process would be folded into the existing event evaluations that already occur in the program offices.

BACKGROUND:

The INES is a means for communicating the safety significance of events at nuclear facilities to the public in consistent terms. By putting events into the proper perspective, the INES fosters a common understanding of events among the nuclear community. It was designed by an international group convened in 1989 by the IAEA and the NEA. The INES also reflects French and Japanese experience with similar scales. The INES was initially applied only to events at nuclear power plants. It was later modified for application to all events associated with the civilian nuclear industry. The INES is currently used in more than 60 countries, including all countries with a significant number of power reactor facilities. A description of the INES rating levels, as provided by the IAEA, is provided as Attachment 1.

The NRC implemented a policy of limited participation on a trial basis in Generic Letter 92-09 (December 31, 1992). Under limited participation, the NRC staff evaluates and rates certain power reactor events (those classified as Alert or higher) without requiring any participation by NRC licensees. At the end of the trial period, the NRC staff proposed in SECY 95-098 (April 18, 1995) that the U.S. continue its limited participation under the criteria developed for the trial. This recommendation was subsequently approved by the Commission in a May 23, 1995 staff requirements memorandum (Attachment 2). In that SRM, former Commissioner de Planque suggested that the staff increase participation in the INES "in the spirit of international cooperation." The staff has received repeated requests from the IAEA and NEA as well as from individual member nations to expand the NRC's participation in the INES.

The "One Voice" initiative and the international information exchange system named NEWS (Nuclear Events Web-based System) are activities related to this issue. The Commission has previously expressed interest in the staff's progress regarding the "One Voice" initiative. The goal of this initiative is to enhance communication and coordination among the member agencies of the Federal Radiological Preparedness Coordination Committee (FRPCC) so that the Federal government speaks in a consistent manner following peacetime radiological events or emergencies under the Federal Radiological Emergency Response Plan (FRERP), especially those events or emergencies occurring in foreign countries. The INES program is closely related to "One Voice" in that it provides a consistent means for describing the significance of an event using a numerical rating scale. An October 13, 2000 memorandum from W. Travers to the Commission (Attachment 3) discusses the staff's plans for the "One Voice" initiative. In addition, the memorandum discusses the staff's participation in an ongoing IAEA, NEA, and World Association of Nuclear Operations (WANO) initiative involving the development of an Internet-based international information exchange system named NEWS. The INES is related

to NEWS in that it forms the first level of the three-tiered NEWS. A prototype version of this system has been completed and is currently undergoing pre-operational testing. Final approval for this system is expected to be discussed at the next meeting of the INES National Officers in early 2002. Prior to this meeting the staff will evaluate NEWS and make recommendations to the Commission on the appropriate level of participation and method of implementation. A brief status report on NEWS is provided as Attachment 4.

DISCUSSION:

The limited participation policy recommended by the staff and approved by the Commission required that the staff submit INES reports only for events at commercial power reactor facilities that resulted in the declaration of an ALERT (or higher) emergency classification. Since SECY 95-098 was submitted to the Commission through March 31, 2001, the NRC's limited participation in the INES has resulted in the classification of 20 events at U.S. power reactors. In decreasing order of significance three events have been rated as *level 2*, four events have been rated as *level 1*, eight events have been rated as *level 0, below scale*, and five events have been rated *out of scale*. Eighteen of the events rated had been declared an ALERT or higher; two events which did not meet the emergency classification criteria were of sufficient interest to warrant ratings. Details concerning these ratings can be found in Attachment 5.

To put the INES ratings into perspective, some significant nuclear events and associated ratings are as follows: (1) the Chernobyl reactor event in 1986 would have been rated *level 7* (the highest level); (2) the event at the Kyshtym, USSR, reprocessing facility in 1957 would have been rated *level 6*; (3) the loss-of-coolant accident at Three Mile Island Unit 2 in 1979 would have been rated *level 5*; and (4) the inadvertent criticality at the fuel facility in Tokaimura, Japan, on September 30, 1999 was rated *level 4*. The vast majority of events reported using the INES are rated *level 3* or lower. Most recently, the steam generator tube rupture at Indian Point Unit 2 on February 15, 2000 was rated *level 0*, which is considered to be below the scale.

As documented in previous Commission papers on the development of the INES (SECY 89-266, SECY 90-031, and SECY 92-225), the staff initially doubted the wisdom of assigning a numerical rating to an event or condition and using two systems to report events in the U.S. More recently, SECY 95-098 summarized the staff's experience with the INES during the trial participation period; the staff found that the simultaneous use of the INES and the existing U.S. emergency response scheme did not appear to cause confusion. However, when SECY 95-098 was submitted, the INES program was still primarily oriented toward events at power reactor facilities, and guidance for reporting other events into INES had not been fully developed.

At the March 2000 meeting of the INES National Officers (see Attachment 6), it was apparent that the use of the INES as an international communication tool continues to gain momentum. Representatives from many member countries attended the meeting and discussed their positive experiences with the INES, including the use of the INES to rate nonpower reactor and materials events. The IAEA representatives and the various national officers were highly interested in whether the U.S. would increase its level of participation in the INES program.

The NRC's Strategic Plan encourages participation in international programs such as INES. One of the agency's strategies to support U.S. interests in this arena is to "enhance integration

of international activities in the NRC.” Using the INES puts our domestic events in an internationally understood frame of reference and provides an effective tool to support the “One Voice” initiative. Further, the INES provides a clear aid to the international stakeholders and encourages other nations to share information about their own events. Increasing our engagement with the international nuclear community can enhance the timely and consistent sharing of information that we want on foreign events.

According to the Strategic Plan, one of the measures of our success in this area is that the outcome of international forums are consistent with U.S. Government objectives. Participation in INES increases our voice at IAEA and helps ensure our Government’s views are considered as international policies are developed for implementing such systems as INES and NEWS. The INES National Officers’ meeting held biennially at IAEA is a good example. Clearly the Agency’s views will be given more weight if we are full participants in the system.

Given the above, the staff believes that it is appropriate to revisit the current policy on participation in the INES. The staff has analyzed the various aspects of participation in the INES program and believes that four alternatives are sufficient for the purpose of examining NRC policy with regard to this issue. The alternatives are: (1) discontinue participation in the INES program; (2) maintain the current policy of limited participation; (3) expand upon the current policy to include screening by the NRC staff of all reported events at power reactors for possible INES rating; and (4) implement a policy of full participation in which all nuclear events (reactor, fuel cycle, materials, and transportation events), including events which fall under the regulatory purview of the Agreement States, are screened by the NRC staff for possible rating on the INES. (A detailed discussion concerning participation alternatives is provided in Attachment 7.) None of the alternatives involve a change to existing NRC emergency preparedness regulations or to licensee emergency planning requirements. The staff intends to communicate the Commission decision regarding future INES participation at the next meeting of the INES National Officers, tentatively scheduled for the spring of 2002.

Alternative 1: Non-Participation

The staff considers a policy of nonparticipation in the INES to be contrary to our strategic objectives. Our trial period of limited participation did not result in any adverse impacts or confusion with the existing emergency response classification scheme. Furthermore, limited participation has not resulted in an unreasonable allocation of staff resources.

Alternative 2: Limited Participation - Reactor Events Classified as Alert or Higher

The staff believes that the current policy of limited participation is no longer sufficient, based upon the successful use of the INES by other countries to describe events involving the use and transportation of radioactive material, and comments received from representatives of other nations and the IAEA. Their concerns include the U.S. policy of evaluating only a limited number of reactor events for potential INES ratings, and our exclusion of all materials and transportation events from INES review.

Alternative 3: Expanded Participation - All Reactor Events

A policy of expanded participation in the INES, consisting of the screening of all reactor events would be practical, especially in the light of recent changes in NRC policy toward the evaluation of events for risk significance. The incremental increase in staff resources required for expanded participation would be quite small, and NRC participation in the INES would continue to have minimal impact on NRC licensees. Furthermore, increased awareness of the INES both domestically and abroad could lead to better international stakeholder understanding of the significance of events involving nuclear reactors.

Alternative 4: Full Participation - All Reactor and Material Events

The staff believes that full participation in the INES, consisting of staff review of all reactor and materials events (with the involvement of the Agreement States when appropriate), is the most desirable alternative. Full participation is defined as the evaluation of all reported nuclear events (reactor, fuel cycle, materials, and transportation events), including events which fall under the regulatory purview of the Agreement States, by the NRC staff for possible rating on the INES. Medical misadministrations are outside the scope of the INES and would not be reviewed by the staff for possible rating. Only events rated at level 2 or higher would be reported to the IAEA, unless another member country specifically requested the rating of a particular event. Events which do not meet these criteria would not be recorded nor reported. This approach is consistent with the "One Voice" initiative described in COMSECY-00-0024 and subsequently approved by the Commission. These reports would normally be submitted to IAEA within two business days of notification to the NRC. The staff intends to develop appropriate implementing guidance for rating events under the scale that is consistent with the INES, but which reflects the NRC's licensing and design requirements for nuclear devices. The current INES Users Manual does not give proper credit for device design in establishing the rating for lost sources. The staff also intends to submit this guidance to the IAEA for incorporation in the next revision of the INES Users Manual.

Full participation in the INES supports the Agency's Strategic Plan in the international arena and keeps the agency engaged in an area which impacts on U.S. Government interests. Alternative 4 also aids our international stakeholders in meeting their obligations with respect to all U.S. events, including those involving radioactive materials. It is also fully compatible with the "One Voice" initiative because it provides a consistent means for describing the relative significance of events to our international counterparts. The incremental increase in staff resources required for expanded participation would be quite small, and NRC participation in the INES would continue to have minimal impact on NRC licensees, certificate holders and Agreement States. Full participation also fosters the development of personal contacts among staff members with those in other countries. These types of relationships have proven valuable during recent international events when the NRC was seeking first hand event information.

The staff notes that the current emergency classification system has been used successfully within the radiological emergency response community for nearly two decades and, under Alternative 4, the current system would not be altered. However, INES could be used to provide another perspective on the significance of an event when requested by a member state of IAEA. Full participation will ensure that we have a sufficient number of trained staff members to respond to such requests in a timely manner.

If the Commission approves the staff recommendation for full participation in the INES, NRC staff plans to develop a communication plan. Among other things, this plan will include media and NRC web page communications, a generic communication to reactor and fuel facility

licensees, and an All Agreement States letter to inform them of this initiative and explain our respective roles. Agreement States currently report significant events to the NRC Operations Center. These and other reportable events are then entered into the Nuclear Materials Event Database (NMED). No new reporting requirements would be established for Agreement States by implementing the INES. Rather, NRC staff would evaluate each event reported by an Agreement State to make an initial determination of the appropriate INES classification of the event. NRC staff would then consult with the affected Agreement State to solicit their input on the rating. Regardless of the participation alternative selected by the Commission, IRO intends to retain the position of INES National Officer, and to continue to provide overall coordination of the staff's INES event review process.

Agency implementation of INES would have minimal impact on reactor or fuel facility licensees and the Agreement States. NRC staff would complete the INES reporting form for those events reportable to IAEA. Based on a review of the NMED database, it is anticipated that very few Agreement State reported events would be rated using the INES because of the relatively low actual or potential consequences associated with these events. As a result, the estimated impact on the Agreement States from full participation in the INES by NRC is expected to be minimal. The staff's intentions were communicated to the Organization of Agreement States (OAS) executive board during the February 2001 NRC/OAS call. The OAS executive board had a number of questions regarding the INES, but no areas of concern were identified.

In the future, U.S. participation in the INES could be expanded to include all events regarding the civilian use of radioactive materials, including events outside of the regulatory purview of the NRC. Further expansion would require the cooperation of additional governmental organizations, including the Department of Energy, the Environmental Protection Agency, and the Department of Transportation. However, many of the interagency coordination issues could be addressed through the Federal Radiological Preparedness Coordinating Committee (FRPCC), in which NRC participates. The staff is not proposing to implement this action at this time.

RESOURCES:

Currently, the staff resources required for event screening and the preparation and submission of INES reports are provided by IRO. Over the past 5 years, this task has required an average of 10 staff hours (less than 0.01 FTE) per year. If the Commission chooses to continue with Alternative 2, Limited Participation, IRO proposes to shift responsibility for preparation of INES reports to NRR, since NRR already has a group of individuals who specialize in event followup.

The screening of events for INES classification and preparation of the INES reports proposed in Alternatives 3 and 4 could be accommodated within existing resources already allotted for event review and followup by the respective program offices (NRR for reactor events; NMSS for materials and transportation events, including those reported by Agreement States). Both NRR and NMSS have groups of individuals who specialize in this task. For NRR, event screening and preparation of INES reports may actually be less than in previous years due to the declining number of reportable events. For NMSS, event screening and preparation of INES reports for applicable events would require a minimal increase in effort beyond that already expended for event followup and screening for other purposes (Abnormal Occurrences, etc.). If the Commission chooses either of these alternatives, the staff intends to use the INES reporting threshold used by other member nations for submitting reports. Specifically, only events of level 2 or higher would be submitted, unless another member country specifically requested the rating of a particular event. The staff estimates that this reporting threshold will result in approximately

one reactor report and fewer than five materials reports being filed per year. IRO would continue to provide overall coordination of the staff's INES event review process and arrange for periodic training as required. No new OMB clearance would be required for the staff to proceed with Alternatives 3 or 4. However, Alternative 4 would affect certain options that will be offered to the Commission in the National Materials Program paper that would terminate NRC tracking of Agreement State events.

The staff will develop a Management Directive to provide staff guidance regarding the implementation of the INES based upon the alternative selected by the Commission. Resources required to develop the Management Directive, and develop and implement the communications plan are estimated to require less than 0.1 FTE, which is within the IRO budget for FY 2001 and FY 2001.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections. The Office of International Programs and the Office of Public Affairs have reviewed this paper and have concurred with the staff's recommendations.

RECOMMENDATIONS:

The staff recommends that the Commission approve Alternative 4, Full Participation, which would increase the scope of NRC participation in the International Nuclear Event Scale while using minimal additional resources.

/RA/

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- Attachments:
1. Description of INES Levels (provided by IAEA)
 2. SRM SECY-95-098
 3. October 13, 2000, Memorandum from W. Travers to Commissioners
 4. Description of NEWS
 5. INES Reports (1995-2000)
 6. Trip Report - Meeting of INES National Officers Conducted in Vienna, Austria, March 29-31, 2000
 7. INES Participation Alternatives

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