

U. S. Nuclear Regulatory Commission
Region I

Docket/Report Nos: 50-245/94-20; 50-336/94-18; 50-423/94-17

License Nos: DPR-21; DPR-65; NPF-49

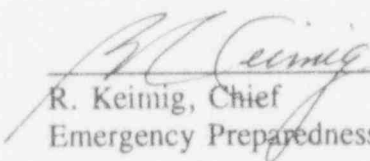
Licensee: Northeast Nuclear Energy Company
P. O. Box 270
Hartford, Connecticut 06101-0270

Facility Name: Millstone Nuclear Power Station, Units 1, 2, & 3
Waterford, Connecticut

Inspection Dates: May 2-6, 1994

Inspectors: J. Lusher, Emergency Preparedness Specialist
R. De La Espriella, Resident Inspector, Millstone Unit 2

Approved:



R. Keimig, Chief
Emergency Preparedness Section

SCOPE

A special inspection was conducted to review the circumstances and the licensee's handling of an unidentified reactor coolant system (RCS) leak and an immovable control rod event (both Unusual Events) that occurred at Millstone Unit 2 on April 20 and April 22-23, 1994, respectively. The licensee did not classify and promptly notify the NRC of these events in accordance with the Millstone Emergency Plan, and did not implement certain remedial actions required by the technical specifications.

RESULTS

Two apparent violations of NRC requirements regarding these events were identified. There were multiple failures to classify and declare an Unusual Event and make the proper notifications in accordance with the licensee's Emergency Plan. In addition, during the immovable control rod event, the failure to ensure an adequate shutdown margin within one hour was contrary to Unit 2 Technical Specification 3.1.3.1a.

DETAILS

1.0 Purpose of the Inspection

The purpose of this inspection was to review the operational and emergency preparedness aspects of two events which occurred at Millstone Unit 2 on April 20 and April 22-23, 1994, involving, respectively, an unidentified reactor coolant system leak and an immovable control rod. These events are described in Sections 2.0 and 3.0.

On May 2, 1994, an emergency preparedness specialist inspector from Region I was dispatched to the station to assist the resident inspector in further review of the events. The inspectors reviewed shift logs, Unit 2 Technical Specifications and the site Emergency Plan and procedures, and interviewed station personnel and management (from all three Millstone Units) relative to the two events.

2.0 Unidentified Leakage Greater Than Technical Specifications - Unit 2

On April 20, 1994, at 4:23 p.m., operators noted that the volume control tank (VCT) level was decreasing, indicating possible leakage from the reactor coolant system (RCS). The leakage was quantified at approximately 8 gallons per minute (gpm). The operating shift recognized that this leakage exceeded the maximum leakage requirements of plant technical specifications, as evidenced by the late entries in the shift supervisor (SS) log to reflect entering technical specification action statement (TSAS) 3.4.6.2b for unidentified RCS leakage greater than 1 gpm at 4:23 p.m. The action statement allowed four hours to reduce the leakage rate to within limits, or place the plant in cold shutdown within the next 36 hours. Operators had recently completed placing the RCS degasifier in service, and suspected that the RCS leak was related to that evolution. They subsequently determined that the leakage was due to a faulty three-way valve (2-LCC-7.1) in the degasifier loop, which allowed RCS coolant to be diverted to the clean (liquid) waste receiver tanks. The operators stopped the leakage and exited the action statement at 7:30 p.m.

At approximately 8:00 a.m. on April 21, during routine attendance at the licensee's daily planning meeting, the resident inspector became aware of this event. The inspector found that the licensee's Emergency Plan, Table 4.1 and 4.5 and Emergency Plan, Appendix I, Emergency Action Level (EAL) Table and Emergency Plan Implementing Procedure (EPIP) 4400, "Event Assessment, Classification and Reportability," require the declaration of an Unusual Event (UE) for an unidentified RCS leak greater than 1 gpm. The licensee had not declared a UE, and had not notified state and local officials, nor the NRC, as required. This is an apparent violation of 10 CFR 50.54(q) which states, in part, "A licensee authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the standards in §50.47(b) and the requirements in appendix E of this part." The inspector discussed these concerns with the Shift Supervisor and the Unit Director, who concurred with the inspector's assessment that an UE should have

been declared. At 9:48 a.m. on April 21, the licensee made the appropriate notifications for the UE.

3.0 Immovable Control Element Assembly (CEA) - Unit 2

On April 22, 1994 at 9:05 p.m., the licensee commenced a plant shutdown in preparation for an outage to replace the "D" reactor coolant pump seal. The shutdown was halted when CEA #65 apparently did not move in when the rods in regulating group 7 were driven inward. CEA group #7 is the first group normally inserted. Instrumentation and Control (I&C) technicians investigated the problem and concluded that the reed switch position indication system for CEA #65 was faulty, and that the rod was moving as required. The operators performed a core map of reactor flux distribution using incore detectors, which appeared to confirm that the rod was not out of position. The licensee later determined that the core map did not reveal a possible rod misalignment because the CEAs were not low enough in the core to affect the core map results. At 9:43 p.m., the licensee entered technical specification action statement (TSAS) 3.1.3.3b for one reed switch position indicator channel inoperable. The TSAS allows four hours to: restore the inoperable position indicator channel to operable status; or place the reactor in hot standby; or borate to reduce thermal power to $\leq 70\%$. The licensee resumed the plant shutdown to $\leq 70\%$ power.

At 11:00 p.m., April 22, a reactor azimuthal power tilt (T_q) alarm was received. Approximately two hours later, due to the T_q alarm and other plant indications, operators realized that CEA #65 was actually not moving in, rather than having a problem with its reed switch position indication. At 1:15 a.m. on April 23, the licensee entered TSAS 3.1.3.1a, for one CEA inoperable due to being immovable. Further investigation by I&C and Reactor Engineering personnel confirmed that CEA #65 remained at 183 steps (fully withdrawn), with the remainder of the rods in regulating group 7 at 88 and 90 steps. At 2:48 a.m. on April 23, the licensee removed power to the gripper coils of CEA #65. The CEA dropped into the core. Two minutes later, the rest of the rods were manually tripped (scram) from approximately E-5 percent power, and the licensee notified the NRC, state and local officials of a "general interest event" due to the scram. Operators completed the post-trip actions without further complications.

The TSAS for one inoperable CEA requires that the plant be placed in Hot Standby within 6 hours. A shutdown required by technical specifications is listed in the licensee's Emergency Plan, Appendix I, EAL Table as a UE. The licensee's Emergency Plan, Table 4.1 and 4.5, requires immediate notification of State and local officials, and the NRC. The licensee did not declare the UE and make the appropriate notifications until 5:50 a.m., approximately four and one-half hours after the event occurred. These failures also constitute an apparent violation of 10 CFR 50.54(q). The TSAS also requires that the shutdown margin requirement of TS

3.1.1.1 be satisfied within 1 hour by calculating the available shutdown margin and comparing it to the limits in the Core Operating Limits Report. If the available shutdown margin is not within limits, operators must initiate and continue boration at ≥ 40 gpm until the required shutdown margin is reached. The Shift Supervisor (SS) had requested operators and a reactor engineer to perform shutdown margin calculations for the existing condition. Due to the lack of a procedure to perform such a calculation, the SS was informed that the shutdown margin could not be calculated. Eventually, the Operations Manager and the Duty Officer evaluated the situation at approximately 2:40 a.m. on April 23, and promptly acted to establish adequate shutdown margin by recommending to the SS that CEA #65 be tripped, followed by the remaining CEAs.

During a review of the sequence of events, the inspector identified that the licensee had not ensured that the shutdown margin requirements of TSAS 3.1.1.1 were demonstrated within 1 hour, or commenced borating at ≥ 40 gpm. The inspector notified the SS of the apparent failure to meet TS requirements at approximately 8:00 a.m. on April 23, and notified licensee management at 12:00 noon. The licensee subsequently declared a UE and made the appropriate notifications at 2:35 p.m., approximately twelve hours and twenty minutes after the event.

4.0 Assessment

The inspectors concluded that the licensee has not provided adequate guidance to operators on what constitutes RCS leakage. This became evident during EAL training after the event for shift supervisors and managers, where the resident inspector observed that a consensus on what constituted RCS leakage could not be established. A Human Performance Evaluation System (HPES) investigation conducted by the licensee also attributed the confusion surrounding the classification and reporting of the unidentified RCS leak to the lack of a clear definition of RCS leakage.

The inspectors found an apparent weakness in licensed operators' and plant management's knowledge and understanding of Emergency Preparedness requirements. During the unidentified RCS leak, the Operations Manager advised the SS that, since the leak was found and isolated within the 4-hour technical specification requirements, the event was not reportable, even though it met the criteria of a UE in the EAL Table. The inspector noted that many other EAL table criteria for UEs, but not the RCS leakage criterion, have incorporated the applicable TSAS time limit. During the immovable rod event, operators were not able to immediately assess that a shutdown required by the technical specifications places the unit in a UE and that immediate notification to State and local officials, and the NRC was required. Additionally, the licensee failed to identify that failure to meet technical specification requirements is also a condition described in the EAL Table as a UE. Two of the three above deficiencies were identified by the resident inspector.

Through interviews with Unit 2 operators, the inspectors determined that reportability determinations performed by SSs are likely to be less conservative when the SS requests input from duty officers, managers, and the licensing organization. The inspectors confirmed this observation with the Unit Director, who had arrived at the same conclusion. The Unit Director issued guidance to his staff concerning initiating notifications for significant events.

The inspectors determined the licensee failed to follow the plant TS requirements for adequate shutdown margin during the immovable CEA event. Adequate shutdown margin ensures that: (1) the reactor can be made subcritical from all operating conditions; (2) the reactivity transients associated with postulated accident conditions are controllable within acceptable limits; and (3) the reactor will be maintained sufficiently subcritical to preclude inadvertent criticality in the shutdown condition.

The inspectors noted performance deficiencies in the failure of the senior reactor operators (SROs) to pursue compliance with the technical specifications during the immovable rod event. During interviews with the Senior Control Operator and the SS, they admittedly failed to ensure the shutdown margin requirements of TSAS 3.1.3.1a were met within one hour due to an oversight. The inspectors asked the SS why the requirements of TSAS 3.1.1.1 were not followed (i.e. initiate borating at ≥ 40 gpm), and the SS responded he had not recalled those requirements until that interview. The inspector requested licensee management to provide justification for the SS to remain on shift. The licensee has provided that justification, which is under NRC review. The inspectors subsequently noted that the licensee provided management oversight of this shift for the following two days, at which time the crew rotated off-shift for three weeks of regularly scheduled operator requalification training. Formal management evaluation of the SS's readiness to perform shift duties will be completed prior to his returning to duty.

The inspectors also identified an apparent deficiency in the operators' knowledge of reactor theory as evidenced by: the core map performed by operators with CEAs fully withdrawn from the core would not have shown a misaligned rod; the delays between operator response to the T_q alarm at 11:00 p.m. on April 22, and entry into the inoperable CEA TSAS at 1:15 a.m. on April 23; and, during interviews, the SS for the immovable rod event commented that he had not clearly understood the requirements for shutdown margin and T_q . The inspector noted that the licensee does not provide reactor theory to operators after initial license training, as this area is not tested by the NRC in requalification examinations. The licensee committed to test all operators on reactor theory in the immediate future.

The inspectors noted programmatic deficiencies in the ability to determine if a CEA is movable, and the ability to determine shutdown margin with an immovable or untrippable CEA. I&C specialists incorrectly concluded that CEA #65 was movable during initial troubleshooting. A formal procedure for determining CEA operability

does not exist. In addition, operators were unable to determine shutdown margin during the immovable rod event, because a procedure does not exist to provide guidance on meeting the TSAS requirements.

The inspectors also noted that the licensee had not focused on the safety significance of the immovable rod event prior to the NRC inspection (i.e., had the CEA been untrippable, the plant may not have had adequate shutdown margin to ensure the reactor could be made subcritical from all operating conditions). Licensee corrective actions (i.e. EAL Table training) focused largely on the emergency classification and reporting aspects of the events. Consequently, a critical evaluation of that event has not been conducted by the licensee commensurate with its safety significance. The inspectors determined the licensee has been slow to perform critical self-assessment of events to identify significant problems. This was previously identified by the licensee in a report from a licensee Independent Review Team (IRT), which reviewed an event involving manual isolation valve CH-442. The manual reactor trip during the immovable rod event met licensee administrative requirements to initiate an investigation of the event. However, licensee management waived that requirement as the trip had not occurred due to an automatic protective signal. The ability to initiate and perform timely and critical self-assessments remains **unresolved** pending a licensee evaluation of Unit 2 and other Millstone Station self-assessment capabilities. (UNR 50-245/94-20-01; 50-336/94-18-01; 50-423/94-17-01)

The multiple failures to declare a UE and make proper notifications in accordance with the licensee's Emergency Plan Table 4.1 and 4.5 and Emergency Plan, Appendix I, Emergency Plan Implementing Procedure EPIP-4400, "Event Assessment, Classification and Reportability," and EPIP 4404, "Notifications and Communications" is an apparent violation of 10 CFR 50.54(q). Title 10, Code of Federal Regulations, Part 50.54(q) states, in part, "A licensee authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the standards in §50.47(b) and the requirements in appendix E of this part." The failure to ensure that the shutdown margin requirements were satisfied within one hour is an apparent violation of the Technical Specification 3.1.3.1a.

5.0 Licensee Corrective Actions

In response to these events, all shift supervisors, duty officers and available managers received supplemental training on the EAL Table. The Unit Director attended all sessions to personally convey his guidance for use of the EAL table and for NRC notifications.

A limited Human Performance Evaluation System (HPES) investigation was performed to determine the underlying causes of the events. The preliminary conclusions were: (a) during the unidentified RCS leak, the cause of the failure to

make the appropriate notification of a UE was confusion over what the RCS boundary was, due to a lack of definition of "RCS leakage;" (b) during the immovable rod event, the ensuing events were due to not having a procedure for determining CEA operability, and the SS being too closely involved in the plant shutdown activities. The inspectors noted that the HPES investigator had not developed both events sufficiently to determine all the underlying causes. The inspector provided this feedback to the HPES investigator and the Unit Director.

The inspectors noted the SSs involved with the RCS leak and immovable rod events were counseled. Additionally, the SS during the immovable rod event will not be allowed to return on shift until evaluated by the operations training staff and authorized by the Unit Director. The crew for the immovable rod event performed a self-assessment of the event, and provided the results to the Operations Manager for his assessment.

6.0 Exit Meeting

The inspectors met with licensee personnel listed below at the conclusion of the inspection to discuss the scope and findings. The inspectors also reviewed the sequence of each event for the licensee's representatives. The licensee acknowledged the findings and provided the corrective actions indicated in the report. Licensee management acknowledged that it had not conducted an in-depth evaluation of the operational aspects of the immovable rod event, and stated that further corrective actions would be taken.

Licensee management committed to establishing a Root Cause Evaluation Team to evaluate the ability of Unit 2 operators to assess, classify and analyze events, and make the appropriate notifications. It will evaluate the ability of licensee management and operators to recognize the significance of events. The team will also assess the adequacy of Unit 2 personnel's root cause capabilities. Additional commitments included reactor theory testing of operators at all units and reinforcement of the role of the shift supervisor at Unit 2.

On May 9, 1994, the Unit Director committed to not restarting Unit 2 until completion of a formal root cause investigation of the immovable rod event, and evaluation of planned and completed corrective actions by the NRC.

7.0 Persons Contacted

The following personnel were contacted during the course of the inspection.

Northeast Nuclear Energy Company

- D. Ashinghurst, Shift Supervisor, Unit 3
- * P. Austin, Nuclear Training Department
- E. Berry, Shift Supervisor, Unit 1
- * J. Becker, Operations Manager, Millstone Unit 2
- * L. Bigalbal, Site Licensing
- * G. Bouchard, Director, Millstone Unit 2
- * M. Brown, Director, Nuclear Training
- * W. Buck, Connecticut Yankee Senior Emergency Plan Coordinator
- * K. Burgess, Emergency Preparedness Coordinator, Haddam Neck
- * T. Dembeck, Nuclear EP Coordinator
- B. Duffy, Unit 2 Maintenance Manager
- * J. Deveau, Supervisor, Emergency Preparedness
- * R. Factora, Director, Site Services, Millstone Station
- * R. Heidecker, Manager Operator Training
- * J. Langan, Unit 3, Operations Assistant
- D. Latz, Shift Supervisor, Unit 1
- * E. Maclean, General Nuclear Trainer, Emergency Preparedness
- * J. Maher, Supervisor, General Nuclear Training, Emergency Preparedness
- * W. McCance, Millstone Station Emergency Plan Coordinator
- D. Mooney, Shift Supervisor, Unit 2
- M. Mullin, Shift Supervisor, Unit 2
- L. Nelson, Shift Supervisor, Unit 2
- J. Resetar, Unit 2 Engineering Supervisor
- L. Palone, Nuclear Safety Engineer
- * R. Rodgers, EP Director, NUSCO
- J. Ruttar, Shift Supervisor, Unit 3
- * A. Saunders, Quality Services Department
- * R. Spurr, Assistant Supervisor, Unit 2 Operator Training
- B. Strong, Unit 2 Operations Assistant
- * J. Watson, Scientist, Emergency Preparedness
- * B. Whittington, Millstone Emergency Preparedness

Nuclear Regulatory Commission

- * P. Swetland, NRC Senior Resident Inspector, Millstone Station
- * Attended the exit meeting on May 6, 1994.

The inspectors also interviewed other licensee personnel.

I. Criteria For Selecting Open Enforcement Conferences

Enforcement conferences will not be open to the public if the enforcement action being contemplated—

- (1) Would be taken against an individual, or if the action, though not taken against an individual, turns on whether an individual has committed wrongdoing;
- (2) Involves significant personnel failures where the NRC has requested that the individual(s) involved be present at the conference;
- (3) Is based on the findings of an NRC Office of Investigations (OI) report; or
- (4) Involves safeguards information, Privacy Act information, or other information which could be considered proprietary.

Enforcement conferences involving medical misadministrations or overexposures will be open assuming the conference can be conducted without disclosing the exposed individual's name. In addition, enforcement conferences will not be open to the public if the conference will be conducted by telephone or the conference will be conducted at a relatively small licensee's facility. Finally, with the approval of the Executive Director for Operations, enforcement conferences will not be open to the public in special cases where good cause has been shown after balancing the benefit of public observation against the potential impact on the agency's enforcement action in a particular case.

The NRC will strive to conduct open enforcement conferences during the two-year trial program in accordance with the following three goals:

- (1) Approximately 25 percent of all eligible enforcement conferences conducted by the NRC will be open for public observation;
- (2) At least one open enforcement conference will be conducted in each of the regional offices; and
- (3) Open enforcement conferences will be conducted with a variety of the types of licensees.

To avoid potential bias in the selection process and to attempt to meet the three goals stated above, every fourth eligible enforcement conference involving one of three categories of licensees will normally be open to the public during the trial program. However, in cases where there is an ongoing adjudicatory proceeding with one or more intervenors, enforcement conferences involving issues related to the subject matter of the ongoing adjudication may also be opened. For the purposes of this trial program, the

three categories of licensees will be commercial operating reactors, hospitals, and other licensees, which will consist of the remaining types of licensees.

II. Announcing Open Enforcement Conferences

As soon as it is determined that an enforcement conference will be open to public observation, the NRC will orally notify the licensee that the enforcement conference will be open to public observation as part of the agency's trial program and send the licensee a copy of this Federal Register notice that outlines the program. Licensees will be asked to estimate the number of participants it will bring to the enforcement conference so that the NRC can schedule an appropriately sized conference room. The NRC will also notify appropriate State liaison officers that an enforcement conference has been scheduled and that it is open to public observation.

The NRC intends to announce open enforcement conferences to the public normally at least 10 working days in advance of the enforcement conference through the following mechanisms:

- (1) Notices posted in the Public Document Rooms;
- (2) Toll-free telephone messages; and
- (3) Toll-free electronic bulletin board messages.

Pending establishment of the toll-free message systems, the public may call (301) 492-4732 to obtain a recording of upcoming open enforcement conferences. The NRC will issue another Federal Register notice after the toll-free message systems are established.

To assist the NRC in making appropriate arrangements to support public observation of enforcement conferences, individuals interested in attending a particular enforcement conference should notify the individual identified in the meeting notice announcing the open enforcement conference no later than five business days prior to the enforcement conference.

III. Conduct of Open Enforcement Conferences

In accordance with current practice, enforcement conferences will continue to normally be held at the NRC regional offices. Members of the public will be allowed access to the NRC regional offices to attend open enforcement conferences in accordance with the "Standard Operating Procedures For Providing Security Support For NRC Hearings And Meetings" published November 1, 1991 (56 FR 56231). These procedures provide that visitors may be

subject to personnel screening, that signs, banners, posters, etc., not larger than 18" be permitted, and that disruptive persons may be removed.

Each regional office will continue to conduct the enforcement conference proceedings in accordance with regional practice. The enforcement conference will continue to be a meeting between the NRC and the licensee. While the enforcement conference is open for public observation, it is not open for public participation.

Persons attending open enforcement conferences are reminded that (1) the apparent violations discussed at open enforcement conferences are subject to further review and may be subject to change prior to any resulting enforcement action and (2) the statements of views or expressions of opinion made by NRC employees at open enforcement conferences or the lack thereof, are not intended to represent final determinations or beliefs.

In addition to providing comments on the agency's trial program in accordance with the guidance in this notice, persons attending open enforcement conferences will be provided an opportunity to submit written comments anonymously to the regional office. These comments will subsequently be forwarded to the Director of the Office of Enforcement for review and consideration.

Dated at Rockville, MD, this 7th day of July 1992.

For the Nuclear Regulatory Commission,
Suzanne J. Child,
Secretary of the Commission.

[FR Doc. 92-16233 Filed 7-9-92; 8:45 a.m.]
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31754

Corrections

Federal Register

Vol. 57, No. 138

Friday, July 17, 1992

NUCLEAR REGULATORY COMMISSION

Two-Year Trial Program for Conducting Open Enforcement Conferences; Policy Statement

Correction

In notice document 92-16233 beginning on page 30762 in the issue of Friday, July 10, 1992, on page 30762, in the second column, under DATES, beginning in the fifth line, "July 11, 1992" should read "July 11, 1994".

BILLING CODE 7590-01-5

ADDRESSES: Send comments to: The Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555. ATTN: Docketing and Service Branch.

Hand deliver comments to: One White Flint North, 11555 Rockville Pike, Rockville, MD between 7:45 a.m. to 4:15 p.m., Federal workdays.

Copies of comments may be examined at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC

FOR FURTHER INFORMATION CONTACT: James Lieberman, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-604-2741).

SUPPLEMENTARY INFORMATION

Background

The NRC's current policy on enforcement conferences is addressed in Section V of the latest revision to the "General Statement of Policy and Procedure for Enforcement Actions," (Enforcement Policy) 10 CFR part 2, appendix C that was published on February 18, 1982 (57 FR 5791). The Enforcement Policy states that, "enforcement conferences will not normally be open to the public." However, the Commission has decided to implement a trial program to determine whether to maintain the current policy with regard to enforcement conferences or to adopt a new policy that would allow most enforcement conferences to be open to attendance by all members of the public.

Policy Statement:

Position

The NRC is implementing a two-year trial program to allow public observation of selected enforcement conferences. The NRC will monitor the program and determine whether to establish a permanent policy for conducting open enforcement conferences based on an assessment of the following criteria:

- (1) Whether the fact that the conference was open impacted the NRC's ability to conduct a meaningful conference and/or implement the NRC's enforcement program;
- (2) Whether the open conference impacted the licensee's participation in the conference;
- (3) Whether the NRC expended a significant amount of resources in making the conference public; and
- (4) The extent of public interest in opening the enforcement conference.

Two-Year Trial Program for Conducting Open Enforcement Conferences; Policy Statement

AGENCY: Nuclear Regulatory Commission.

ACTION: Policy statement.

SUMMARY: The Nuclear Regulatory Commission (NRC) is issuing this policy statement on the implementation of a two-year trial program to allow selected enforcement conferences to be open to attendance by all members of the general public. This policy statement describes the two-year trial program and informs the public of how to get information on upcoming open enforcement conferences.

DATES: This trial program is effective on July 10, 1982, while comments on the program are being received. Submit comments on or before the completion of the trial program scheduled for July 11, 1982. Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration only for comments received on or before this date.