UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

August 21, 1989

TO: ALL HOLDERS OF OPERATING LICENSES OR CONSTRUCTION PERMITS FOR NUCLEAR POWER PLANTS*

SUBJECT: EMERGENCY RESPONSE DATA SYSTEM - GENERIC LETTER 89-15

The Commission is in the process of implementing an Emergency Response Data System (ERDS). The ERDS will provide direct electronic transmission of a limited set of parameters from a licensee computer to the NRC during an emergency at a licensed nuclear power facility. Implementation is proceeding on a voluntary basis and efforts are being taken to minimize the burden on the participating facilities. We believe that the implementation of this system will be beneficial to both the NRC and licensees for the reasons explained below.

The Commission has defined the NRC's primary role in an emergency at a licensed nuclear facility as one of monitoring the licensee to assure that appropriate recommendations are made with respect to offsite protective actions. Other aspects of our role include supporting the licensee with technical analysis and logistic support, supporting offsite authorities, including confirming the licensee's recommendations to offsite authorities, keeping other Federal agencies and entities informed of the status of the incident, and keeping the media informed of the NRC's knowledge of the status of the incident.

To fulfill the NRC's role, the NRC requires accurate, timely data on four types of parameters: (1) core and coolant system conditions must be known well enough to assess the extent or likelihood of core damage; (2) conditions inside the containment building must be known well enough to assess its status; (3) radioactivity release rates must be available promptly to assess the immediacy and degree of public danger by these pathways; and (4) the data from the plant's meteorological tower is necessary to provide insight into the potential distribution of a release.

Experience with the voice-only emergency communications link, currently utilized for data transmission, has demonstrated that excessive amounts of time are needed for the routine transmission of data and for verification or correction of data that appear questionable. Error rates have been excessive and the frequency of updates has been unreliable.

The ERDS concept is a direct electronic transmission of selected parameters (Enclosures 1 and 2) from existing facility electronic data systems which have been established by the licensees. The ERDS would be for use only during emergencies at the facilities and would be activated by the licensees upon declaration of an ALERT or higher emergency classification to begin transmission to the NRC Operations Center. The ERDS would be supplemented with voice transmission over the existing Emergency Notification System (ENS) of essential data not available on licensees' systems, rather than requiring modifications to existing systems.

*See page 3 for special instructions for certain plants.

IDTR-5
GENERIC
LETTER

The utility is expected to provide an output port on the appropriate data system and the necessary software to assemble the data to be transmitted. No personnel action should be required for the acquisition or transmission of data after activation of the system.

Accuracy and reliability are expected to be excellent because there are no human interfaces and many data systems, such as the Safety Parameter Display System (SPDS), will incorporate automatic data validation. Timeliness should be excellent because the system would be immediately available and capable of rapid transmission with frequent updating. Parametric coverage is expected to be excellent because the primary objective of the SPDS requirement is to provide the licensee with a tool for quickly assessing the overall status of the plant, i.e., the same need that the NRC faces. Therefore, voice communications would be directed toward plant conditions and plant response rather than individual instrument readings.

Tests of the ERDS concept have been conducted with Duke Power Company (McGuire) and with Commonwealth Edison (LaSalle and Zion). These tests have demonstrated that there is great value in using electronic data transmission for obtaining a limited set of reliable, time tagged data. The NRC response teams functioned more efficiently and their assessments were more timely. Major improvements in the ability to focus on significant factors and to predict the course of events were noted. The questions that were asked of the licensee were focused on the overall status and corrective actions being considered rather than simple data requests, thereby reducing the volume of voice communications.

Actual work on the ERDS project began in 1985 with an initial feasibility survey conducted at approximately 80 percent of the licensed nuclear facilities in the United States.

An ERDS implementation contractor began work in January 1988. The initial activities of the contractor have focused on an indepth review of the survey results, the production of final NRC hardware and software designs and the procurement of the necessary hardware and software. We are currently working with an initial set of utilities that have agreed to participate and we expect to establish initial plant connections in 1989. The lessons learned in implementation with this initial group will be fed back to the subsequent participants. Extensive interactions were held with NUMARC. Additionally, the ERDS program was discussed at the NRC Regulatory Conference with industry in April, 1989. We hope to complete all plant connections by early 1992. Enclosed is a list of frequently asked questions and our answers to assist you in a better understanding of the ERDS program.

This request is covered by Office of Management and Budget Clearance Number 3150-0011 which expires December 31, 1989. The estimated average burden hours is 150 person hours per licensee response, including staff and management review, formulation of licensees' position, and preparation of the requested response. These estimated average burden hours pertain only to these identified response-related matters and do <u>not</u> include the time for any follow on implementation.

Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Records and Reports Management Branch, Division of Information Support Services, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; and to the Paperwork Reduction Project (3150-0011), Office of Management and Budget, Washington, D.C. 20503.

We believe the benefits to the overall incident response capability are substantial and the costs to each utility are small. We would like to continue implementation on a voluntary basis. The purpose of this generic letter is to solicit the participation of those utilities which have not yet volunteered* in the ERDS program. Since we also plan to contact each utility individually, please provide an appropriate contact in your organization for followup discussion. Should you have any questions, please feel free to call Gary Zech, Chief, Incident Response Branch at (301) 492-4193 or have your staff call John Jolicoeur, ERDS Project Manager at (301) 492-4155.

Sincerely,

James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. PWR Parameter List
2. BWR Parameter List
3. Questions and Answers List
4. List of Most Recently Issued Generic Letters

*This generic letter is for information only for Zion, Dresden, Quad Cities, Byron, LaSalle, Braidwood, Palisades, Three Mile Island, Oyster Creek, Fitzpatrick, Ft. St. Vrain, LaCrosse, Big Rock Point, Rancho Seco, Davis Besse, Oconee, McGuire and Catawaba because these facilities are exempt from providing a response since they fall into one of the following categories:

1. Licensee has already volunteered
2. Reactor facility is inactive
3. Reactor facility has been deemed inappropriate for connection to ERDS.

Enclosure 1

PWR Parameter List

Primary Coolant System	Pressure Temperatures - Hot Leg Temperatures - Cold Leg Temperatures - Core Exit Thermocouples Subcooling Margin Pressurizer Level RCS Charging/Makeup Flow Reactor Vessel Level (When Available) Reactor Coolant Flow Reactor Power
Secondary Coolant System	Steam Generator Levels Steam Generator Pressures Main Feedwater Flows Auxiliary/Emergency Feedwater Flows
Safety Injection	High Pressure Safety Injection Flows Low Pressure Safety Injection Flows Safety Injection Flows (Westinghouse) Borated Water Storage Tank Level
Containment	Containment Pressure Containment Temperatures Hydrogen Concentration Containment Sump Levels
Radiation Monitoring System	Reactor Coolant Radioactivity Containment Radiation Level Condenser Air Removal Radiation Level Effluent Radiation Monitors Process Radiation Monitor Levels
Meteorological	Wind Speed Wind Director Atmospheric Stability

Enclosure 2

BWR Parameter List

Primary Coolant System	Reactor Pressure Reactor Vessel Level Feedwater Flow Reactor Power
Safety Injection	RCIC Flow HPCI/HPCS Flow Core Spray Flow LCPI Flow Condensate Storage Tank Level
Containment	Drywell Pressure Drywell Temperatures Hydrogen and Oxygen Concentration Drywell Sump Levels Suppression Pool Temperature Suppression Pool Level
Radiation Monitoring System	Reactor Coolant Radioactivity Level Primary Containment Radiation Level Condenser Off-Gas Radiation Level Effluent Radiation Monitor Process Radiation Levels
Meteorological	Wind Speed Wind Director Atmospheric Stability

Enclosure 3

ERDS QUESTIONS AND ANSWERS

1. Will the implementation of the ERDS affect the NRC response role or the way that role is fulfilled?

   No. The NRC response role was defined and approved by the Commission and would not change due to the ERDS. Current response activities, including discussions with the licensee, will be done more quickly and efficiently due to ERDS implementation but would not materially change.

2. What communication protocol will be set up to accomplish the ERDS implementation?

   A generic letter providing information about the ERDS and plans for its implementation will be promulgated to all licensees requesting their participation in the program.

   Once a utility has committed to participate in the ERDS project, it will be contacted by telephone by the AEOD ERDS project manager and the NRC contractor to make arrangements for a site specific implementation schedule.

   The NRC will send a questionnaire to the licensee to obtain necessary preliminary information about the licensee's computer system and the ERDS parameters. For many licensees this questionnaire will also serve to

confirm data obtained during the ERDS feasibility study conducted in Response to this questionnaire should be forwarded to the NRC and its contractor. Any questions or problems concerning the questionnaire sh be referred to John R. Jolicoeur, AEOD ERDS Project Manager at (301) 492-4155 or Tony LaRosa, ERDS Project Manager, EI International at (208 529-1000.

After this information has been reviewed, we will proceed with the syst implementation process as described in the response to the following question.

3. How will the plant specific design and implementation aspects of ERDS b finalized with a facility?

Once a utility has committed to participate in the ERDS project, an ir meeting will be held at the licensee's facilities with the NRC and ou implementation contractor. The topics to be discussed include:

The data points available on the licensee's computer to be transmitted that best satisfy the NRC parameter list.

The computer or computers that will be sending the data str their operating characteristics.

The data stream characteristics and communications metho EBCDIC) to be used to transmit the data.

Any hardware and software required for the ERDS implementation. The plant specific implementation schedule based on plant capabilities, the need for hardware additions or modifications, and software development requirements.

Subsequent ERDS development and initial testing will be done based on the agreed upon schedule.

4. What is the current program schedule?

Software is being developed by the NRC's contractor and should be completed by late summer 1989. The first utility on line to the NRC Operations Center in Bethesda is scheduled for early 1990 with subsequent connections scheduled over a 2 to 3 year period.

5. Will the implementation of the ERDS require significant equipment modification or addition by licensees?

The only equipment requirements are for the hardware that is needed to provide the data stream from the current licensee equipment that processes the requested data. Should the computer system not be capable of producing the data stream for transmittal, then the ERDS will be implemented as site equipment modifications permit. Approximately 5 to 10 percent of the licensee's systems are running at close to 100 percent processing capacity in the post trip or incident environment, and approximately 10 to

15 percent of the licensee systems are hardware limited (e.g. no available output port for an ERDS connection). The ERDS will follow, not drive, licensee equipment modifications. For those licensees where no new hardware is required, the costs per reactor unit are estimated in the range of $20K to $50K. This estimate includes labor costs associated with software development, design change notice documentation, testing, and procedure development. At the upper end of the cost spectrum, the survey revealed that two plant sites would require additional computer equipment to provide the necessary ERDS feed. The hardware costs were estimated at $150K plus licensee staff time required to set up a custom system development effort with the appropriate contractor.

6. Will the ERDS be considered safety grade or require redundant equipment?

No. The ERDS feed will be as reliable as the current licensee equipment providing data to the licensee's own TSC and EOF. The addition of new plant instrumentation or computer data points to provide ERDS data will not be required.

7. Will the current data list be expanded?

No. The issue has been well studied since the Nuclear Data Link was originally proposed after TMI. The development of the data list followed our determination of our role in an emergency and provides the information we need to perform that role. Needed data not transmitted over ERDS will still be passed over the ENS.

8. Must the ERDS be used to transmit drill data?

That is not a design requirement. For those system configurations which only allow the transmission of real data, no modification will be expected. However, if the licensee system is used for drills and can provide the transmission of the drill data, we would like to use the capability for our drill participation.

9. Will the ERDS be an LCO or Tech Spec item?

No.

10. How soon does the NRC expect the system to be initiated after an Alert declaration?

The ERDS should be initiated when the licensee notifies the NRC of the declaration of an Alert or higher emergency classification.

11. Will the transmission of data point values for times prior to the time of the ERDS activation be required?

No. Only the data values from the time of the transmission initiation will be required over the ERDS. Information on initiating conditions and plant status will be provided over the verbal communication line as necessary. Specifically, earlier parameter values will not be required.

If a licensee system has the capability to transmit earlier data point values the NRC would like to utilize that feature but it clearly is not a design requirement.

12. Once the ERDS is implemented, will continuous manning of the ENS (Red Phone) still be required?

Yes. The ERDS will not eliminate the need for verbal transmission of information such as licensee actions, recommended protective actions, and supplemental event-specific data not provided by ERDS. Emphasis will be given to producing no new impact on Control Room personnel due to the transmission of data over the ERDS.

13. What procedures and system controls will be required for the ERDS?

A procedure will be required for activation of the system during emergencies, probably an emergency plan implementing procedure, and for conducting system tests with the NRC. Any procedures or controls for system verification and validation or configuration control should be done in conformance with existing plant procedures as modified to require prompt notification of the NRC for any change which affects ERDS parameters or the ERDS data stream.

14. Will the ERDS data be provided to State authorities?

Although the NRC is not soliciting or recommending State participation in the ERDS program, one provision of the systems design is user ports for States within the 10 mile plume exposure EPZ. This provision was made to reduce the likelihood of different data being provided to the NRC and a State because of differing data sets where the State has decided to collect data. This provision is not expected to affect States that already have a data collection system. If a State expresses a desire to participate in the ERDS program, the NRC will provide ERDS data to that State under a specific Memorandum of Understanding. The purpose of this Memorandum of Understanding would be to specify communication protocols for clarification of ERDS data and data security requirements. The NRC would provide those States with contractor developed software and make one output port available to the State from the NRC Operations Center. The States would have to obtain compatible PC hardware and licensed software used in the ERDS system to receive the data. This will ensure that all parties involved are using the same data base for their analysis. Any request made by a State to set up the capability to receive the data will be discussed with the utility.

15. Will the NRC require a periodic test of the ERDS, and if so how frequently?

The NRC does expect that periodic testing will be required to ensure system operability. Currently we expect that testing will be done quarterly. Should system reliability permit, the frequency of testing may

be reduced. Testing of a State link portion of the system will be done with the NRC. Therefore, no licensee participation will be required for this test.

16. Will participation in the ERDS program remain voluntary?

The NRC is reviewing the need for rulemaking to require the implementation of ERDS at all nuclear power plants in the event the voluntary program is not achievable. It is anticipated that the provisions of a proposed rule would be the same as those of the voluntary implementation program currently in effect.

17. What will be the boundary of system maintenance responsibility?

The NRC will be responsible for maintenance of all parts of the ERDS system installed starting at the input port of the first ERDS-specific piece of hardware (e.g. modem for single feeder plants and multiplexer for multi-feeder plants).

Enclosure 4

LIST OF RECENTLY ISSUED GENERIC LETTERS

Generic Letter No.	Subject	Date of Issuance	Issued To
89-15	EMERGENCY RESPONSE DATA SYSTEM GENERIC LETTER NO. 89-15	08/21/89	ALL HOLDERS OF OPERATING LICENSES OR CONSTRUCTION PERMITS FOR NUCLEAR POWER PLANTS
89-07	SUPPLEMENT 1 TO GENERIC LETTER 89-07, "POWER REACTOR SAFEGUARDS CONTINGENCY PLANNING FOR SURFACE VEHICLE BOMBS"	08/21/89	ALL LICENSEES OF OPERATING PLANTS, APPLICANTS FOR OPERATING LICENSES, AND HOLDERS OF CONSTRUCTION PERMITS
89-14	LINE-ITEMS TECHNICAL SPECIFICATION IMPROVEMENT - REMOVAL OF 3.25 LIMIT ON EXTENDING SURVEILLANCE INTERVALS (GENERIC LETTER 89-14)	08/21/89	ALL LICENSEES OF OPERATING PLANTS, APPLICANTS FOR OPERATING LICENSES, AND HOLDERS OF CONSTRUCTION PERMITS
89-13	GENERIC LETTER 89-13 SERVICE WATER SYSTEMS PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT	7/18/89	LICENSEES TO ALL POWER REACTORS BWRS, PWRS, AND VENDORS IN ADDITION TO GENERAL CODES APPLICABLE TO GENERIC LETTERS
89-12	GENERIC LETTER 89-12: OPERATOR LICENSING EXAMINATIONS	7/6/89	LICENSEES TO ALL POWER REACTORS BWRS, PWRS, AND VENDORS IN ADDITION TO GENERAL CODES APPLICABLE TO GENERIC LETTERS
89-11	GENERIC LETTER 89-11: RESOLUTION OF GENERIC ISSUE 101 "BOILING WATER REACTOR WATER LEVEL REDUNDANCY"	6/30/89	ALL BWR PLANTS & ALL LISTINGS APPLICABLE TO GENERIC LETTERS & VENDORS, ETC.
89-10	GENERIC LETTER 89-10: SAFETY-RELATED MOTOR-OPERATED VALVE TESTING AND SURVEILLANCE	6/28/89	LICENSEES TO ALL POWER REACTORS, BWRS, PWRS, AND VENDORS IN ADDITION TO GENERAL CODES APPLICABLE TO GENERIC LETTERS

Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Records and Reports Management Branch, Division of Information Support Services, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; and to the Paperwork Reduction Project (3150-0011), Office of Management and Budget, Washington, D.C. 20503.

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Sincerely,
Original signed by
James G. Partlow

James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

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1. Licensee has already volunteered
2. Reactor facility is inactive
3. Reactor facility has been deemed inappropriate for connection to ERDS.

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Memo to Murley from Jordan dated July 27, 1989, has concurrences and also CRGR approval.

August 21, 1989

MEMORANDUM FOR: All NRR Project Managers

FROM: James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

SUBJECT: EMERGENCY RESPONSE DATA SYSTEM GENERIC LETTER NO. 89-15

Enclosed is a copy of Generic Letter 89-15 on the Emergency Response Data System (ERDS). The ERDS, as described in the Generic Letter, is a direct electronic link between an emergency response oriented data system currently used by the licensee to a data system at the NRC's Operations Center. The ERDS would transmit a limited data set (approximately 65-100 points), only during emergencies (Alert or above), and would be activated by the licensee. Participation in the development of the ERDS is currently voluntary, although rulemaking is under way, therefore, a commitment to participate is not required by this letter.

When the licensee for the plant to which you are assigned responds with a point of contact, please provide a copy of that response to the lead PM, John Hickman (mail stop 13-D-1), so that he can forward it to the appropriate AEOD staff. Questions on this Generic Letter can be addressed to John Hickman at X23017.

Original signed by
James G. Partlow
James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosure:
Generic Letter 89-15

cc w/enclosure:
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H. Thompson, DEDS
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