

May 4, 1987

NOTE TO: Thomas A. Rehm, Assistant for Operations, EDO

NUCLEAR DATA LINK STATUS

As requested, enclosed is a status report on the NRC program to establish a Nuclear Data Link/Emergency Response Data System for the FY 1988-89 budget hearing. Please call me if you have any further questions.

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Enclosure:
Question 10

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QUESTION 10. Please provide a status report on the Commission's program to establish a nuclear data link system.

ANSWER.

The concept of providing a continuous transmission of several hundred parameters from all nuclear power facilities to the NRC, as was envisioned by the Nuclear Data Link, was reevaluated by the NRC in light of our assessment of the NRC role in an emergency at a licensed nuclear facility and the data needed to support that role.

The Commission has determined that NRC's primary role in an emergency is to monitor and advise. Our monitoring role is in two areas:

- ° We monitor the licensee to assure that appropriate recommendations are made with respect to offsite actions.
- ° We also monitor the licensee to assure they are taking the appropriate onsite action to mitigate consequences of the incident.

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Another aspect of our role is advisory:

- ° We support both the licensee and the onsite NRC response team with technical analyses, advice, and logistical support.
- ° We also support offsite authorities including confirming licensees' recommendations to offsite authorities.

Agency advice or recommendations will be made by the NRC's Chairman (or his designee) to a licensee manager or the appropriate state or local decisionmaker.

In addition to the above, NRC is the single Federal focal point for keeping other Federal agencies and entities and the media informed on the status of the incident.

The effectiveness of the NRC in performing its role is dependent on the quality and timeliness of the event information the agency receives. The types of information the agency needs for emergency response are: reactor systems conditions, containment building conditions, radioactivity release rates, and the plant's meteorological data. It may also be appropriate to provide state and local authorities with the meteorological and radiological data as this data is useful given their role and expertise.

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Currently, the data is transmitted to the NRC from the licensee by standard voice telephone communications. Two primary phone links are used. One is dedicated for reactor data, the other is primarily for radiological and meteorological data. Our experience with voice-only emergency communications, starting with the accident at Three Mile Island and reinforced numerous times since then, is that it is too slow and error prone. Information is misunderstood, frequently creating false issues which at best divert experts from the real problems. Even worse, incorrect data can cause NRC to respond to the licensee or offsite officials with inaccurate or outdated advice or recommendations.

The NRC evaluation of how to address our data needs included options varying from the Nuclear Data Link involving extensive continuous transmission of a large quantity of parameters from all facilities to the current voice method. The system determined to provide the data in an accurate, reliable, and timely manner while minimizing impact on the licensees was the Emergency Response Data System. The differences between the original Nuclear Data Link concept and the Emergency Response Data System are noted on the attached table.

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The ERDS concept is a direct electronic transmission of selected parameters from nuclear power reactor licensees' electronic data systems. The ERDS would be for use only during declared emergencies at the facilities. It will be activated by the licensees during declared emergencies to begin transmission of the selected set of parameters to the NRC Operations Center.

We have successfully conducted tests of the ERDS concept with Duke Power Company at the McGuire facility and with Commonwealth Edison at the LaSalle facility. Both tests confirmed the advantages of having direct electronic transmission of a selected set of parameters.

Based on the successful tests of the concept, the NRC initiated an ERDS Requirements Analysis. The effort consisted of visits to the licensees to determine the design of the site data systems and the availability of the data requested by the NRC.

Based on the results of the surveys, it appears that the ERDS concept can be implemented with relatively little difficulty at essentially all sites. Ease of implementation will vary depending on type and utilization of licensee equipment. Implementation at some sites may require a delay until other equipment upgrades are completed.

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In view of the large potential benefit to the NRC incident response capability from the ERDS and the results of the survey indicating the relative ease of implementation, the NRC currently plans to begin implementation of the system on a voluntary basis.

The process of selecting a contractor for implementation of the ERDS system has begun, with award expected near the end of FY 1987. Prioritization of the plants to be implemented is to be decided based on the ease of implementation, cost, cooperativeness of licensee, and operational history of the facility. Only limited plant connections are expected the first year due to high initial costs for the processing hardware and software at Headquarters. However, completion of the system is expected in 5 years.

NDL vs ERDS

NDL

- * Automatic activation based on plant parameters. Potential regulatory tool.
- * Data continuously recorded at Operations Center.
- * Some connections direct to plant sensors, potentially degrading instrumentation.
- * Initial data list about 400 variables, later reduced to 125.
- * High cost due to requirement for a totally new system.
- * Extensive backfit, requiring dedicated onsite computer.
- * Increased data may encourage NRC to direct plant operation.
- * Accuracy and reliability are excellent.
- * Timeliness is excellent.
- * Completeness is potentially excellent due to parameter availability.
- * Reduces data gathering and transmission burden on licensees.

ERDS

- * Licensee activated. Probably at Alert level.
- * Data provided under emergency conditions only.
- * No direct connection.
- * Data list about 60 variables, comparable to SPDS set.
- * Relatively low cost due to usage of existing systems.
- * Minimal backfit, software for data assembly and modem for transmission.
- * Limited data list necessary to assess plant safety.
- * Accuracy and reliability are excellent.
- * Timeliness is expected to be excellent. Initiation will depend on system configuration.
- * Completeness is expected to be excellent. Site surveys have indicated good parameter coincidence.
- * Reduces data gathering and transmission burden on licensees. Supplemental voice transmissions have been reduced.