

July 30, 1997

SECY-97-169

FOR: The Commissioners

FROM: L. Joseph Callan /s/
Executive Director for Operations

SUBJECT: PROPOSED CHANGE TO THE INDEPENDENT RADIATION MONITORING
PROGRAM UNDER WHICH THE NRC CONTRACTS WITH STATES
TO MONITOR THE ENVIRONMENT AROUND NRC-LICENSED
FACILITIES

PURPOSE:

This paper responds to COMSECY-96-054 to present for the Commission's consideration the staff's recommendation regarding the scope of work performed by States under contract to the Office of Nuclear Reactor Regulation (NRR) for the Independent Radiation Monitoring Program (IRMP).

BACKGROUND:

In the 1970s, the NRC initiated a radiation monitoring program in which NRC contracted with States to measure radioactive materials released into the environment from NRC-licensed facilities. The IRMP contracts provide for two types of monitoring: radioassay of environmental samples and direct radiation measurement using thermoluminescence dosimeters (TLDs). The cost to the NRC for this program in fiscal year 1997 is \$1.167 million. Most of the facilities that are monitored under this program are nuclear power plants.

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The IRMP is a collaborative effort between NRC and the States that provides a comparison with the environmental measurements made by NRC-licensed facilities. The program serves as an avenue for the NRC to assist State radiological health programs to develop their own environmental monitoring programs, but not to fully fund them. NRR maintains 35 contracts with 34 States and the University of Florida. Participation by the States is voluntary.

In late 1994, NRR considered terminating the environmental monitoring portion of the IRMP in calendar year 1995. The consideration to eliminate that portion of the IRMP arose from a perception that the information received from the States was of limited value from a safety perspective. In addition, NRR believed that the States had been provided ample opportunity to fully develop their radiological programs, considering the NRC financial and technical assistance that was provided since the mid-1970s.

NRR sought informal feedback from the affected States, the Office of Nuclear Material Safety and Safeguards, the Office of State Programs, the Office for the Analysis and Evaluation of Operational Data, the Office of the General Counsel, and NRC regional offices. As expected, the affected States and the regional offices strongly supported the program, while the others expressed limited support. The support focused on the program's merits to promote mutual cooperation between the NRC regional offices and the States, the "independent" nature of the data, problems the States would have with their budgets if funding was cut so late in the year, and the negative public perception if the program was terminated.

Upon consultation with NRC senior management, including the Executive Director for Operations and the Chairman, the staff decided to take the following course of action. The program would be funded for calendar year 1995. A letter would be sent to the States asking for comments on NRC's proposed plan to eliminate the environmental monitoring part of the cooperative agreement program in 1996 and beyond. Additionally, a *Federal Register* notice would be issued requesting comments on the

proposed elimination of the environmental monitoring part of the State contracts. NRR would evaluate the comments and decide on the status of the program for 1996 and beyond.

On April 11, 1995, NRR published an announcement in the *Federal Register* (60 FR 18428) of its intent to eliminate the environmental monitoring portion of the IRMP. The announcement stated that eliminating the data supplied by the States should not interfere with NRC's ability to effectively monitor and regulate NRC licensees, considering the excellent record maintained by the facilities in controlling the release of radiological effluents into the environment within regulatory limits, combined with effective radiological environmental monitoring programs. It stated that NRR believed that eliminating this portion of the IRMP was prudent to ensure that public health and safety are protected in a cost-effective manner.

A total of 17 sets of comments were received on the IRMP. Of the total, 15 sets of comments came from State or local government agencies that were against reducing the program. The other two sets of comments came from the nuclear power industry and supported NRC's proposed action.

Comments that opposed reducing the program focused on public perception of nuclear power and the environment. These commenters stated that the public demands that independent environmental monitoring be performed to ensure that nuclear power plants are not causing a long-term change in the environment. Also, some commenters indicated that the public does not trust the NRC or the utilities to fully monitor the environment and disclose any problems.

Some States noted that a reduction in NRC funding would likely cause a reduction in personnel who work for State environmental monitoring laboratories.

Certain States believe that a reduction in the environmental monitoring performed by the States will send a message to licensees that they can decrease their vigilance. This course

of action, they believe, will cause a long-term degradation of the nuclear power plant radioactive effluent discharge programs.

In the views of some States, the environmental monitoring program ensures that operating monitoring equipment and supporting laboratory capability will continue to be available in the State programs in the event of an accident at a nuclear facility.

Comments supporting NRC's proposed action came from the Nuclear Energy Institute (NEI) and were based on a survey of the nuclear power industry. NEI stated that the environmental monitoring performed by the States has been beneficial but that incurring continued costs to gather and analyze the comparison data, given a record of several years of excellent comparisons from several facilities, is not the most cost-effective use of the NRC's, and ultimately the nuclear industry's, resources. One nuclear utility added that the State environmental monitoring program has demonstrated very good comparisons among State, NRC, and licensee environmental monitoring programs, and the continuation of the program is redundant and unnecessary on the basis of technical merit and cost-effectiveness.

In October 1995, at the direction of NRC senior management, the information on the IRMP was submitted to the Strategic Assessment and Rebaselining Committee for consideration. The committee included the IRMP as part of the Strategic Assessment Issue Paper 4 (DSI 4) on NRC's relationship with Agreement States. In response to DSI 4, the Commission directed the staff to evaluate the cost effectiveness of the program and make a recommendation for the continuation or elimination of the program.

DISCUSSION:

All licensed U.S. nuclear power plants are required by General Design Criterion 64 of Appendix A and Section IV.B of Appendix I to 10 CFR Part 50 to periodically collect and analyze samples from the environment and perform direct radiation measurements around the plant site for indications of radioactive materials originating from the plant. This environmental monitoring program is to verify that measurable concentrations of

radioactive material and levels of radiation are not higher than allowed or expected on the basis of a measurement of plant effluents and the analytical modeling of the environmental exposure pathways. In turn, the measurements program certifies that the plant is in compliance with regulations and that the measured releases do not exceed the amounts defined in the final environmental statements as representing very small risks to members of the public.

Extensive monitoring is required for each plant, with sampling/measurement frequencies ranging from weekly to annually in accordance with its technical specifications. The radiological environmental monitoring program records when, if ever, radioactive materials above natural background levels are detected around the plant site. Samples come from sources such as lakes, rivers, and well water for waterborne contaminants; radioiodine adsorbers and particulate dusts for airborne contaminants; and milk, fish, shellfish, and vegetables for radioactive materials that might be ingested as foods. As part of this program, the laboratories of the licensee and of the licensee's contractors where environmental sample analyses are performed must participate in an interlaboratory comparison program. Such participation ensures that independent checks are performed on the precision and accuracy of the measurements of radioactive materials in environmental samples. In addition to the radioassay of environmental samples, licensees also monitor direct radiation using TLDs in each of up to 16 sectors of land surrounding the plant. The TLDs measure the cumulative radiation dose at locations in each sector for each calendar quarter. All licensee measurements in the radiological environmental monitoring programs are recorded in a radiological environmental monitoring report, which is submitted annually to NRC and placed in the local public document rooms.

NRC periodically inspects licensees' radioactive effluent and environmental monitoring programs. The inspection program requires an NRC inspector to review the licensee's effluent release program, the environmental monitoring program, calculated doses to members of the public, the meteorological monitoring program, the environmental monitoring quality assurance program,

and the licensee's audits and self-appraisals. The inspection program will continue to ensure that licensees operate and maintain effective programs in compliance with NRC requirements.

Although the IRMP provides supplemental data that the regions may use as part of their inspection effort, the program represents only a small part of NRC's oversight activities of licensed facilities to ensure compliance with NRC requirements. The data are not routinely included as part of the NRC inspection program.

The States have the option of participating in either or both of the components of the IRMP: environmental monitoring and direct radiation measurement. The environmental monitoring portion of the contract requires the State to obtain and analyze environmental samples (air, water, soil, and food products) that duplicate as closely as possible certain parts of licensee environmental monitoring programs. The States send an annual report to NRC noting all analyses they perform and comparing them with similar analyses performed by individual nuclear facilities. NRC regional offices can use these data to supplement their assessments of environmental monitoring programs conducted by nuclear power plants. Not all States participate in the environmental monitoring portion of the contracts. Twenty-seven States, of a possible 34, are under contract to perform this monitoring. Of the total \$1.167 million budgeted for the IRMP, the cost of the environmental monitoring portion of the contracts is \$975,000.

The direct radiation measurement portion of the contract involves the placement of TLDS to continuously measure radiation exposure rates in the air outside the licensee's facility. This program was initiated following the accident at Three Mile Island to supplement the monitoring performed by licensees. The TLDS provide the NRC with the capability to independently assess the radiological impact in the event of an accident. State personnel place TLDS on poles in specific locations around a nuclear facility, typically near the licensees' TLDS. The exposed TLDS are replaced quarterly and are shipped to NRC's Region I office, which performs the analyses and compares TLD data with licensee

data. The cost to NRC of this portion of the IRMP contracts is \$192, 000.

Under the IRMP, the States act as agents of NRC by providing personnel, equipment, and analytical services to conduct an independent environmental monitoring program. The States do not directly inspect NRC-licensed facilities. NRC regional staff members constitute the principal contact with the States, providing administrative and technical coordination and conducting periodic performance appraisals to determine the adequacy of State performance under the contract. The regional offices work with the States to uncover problems and to assist the States as necessary. NRC Headquarters manages the administration of the contracts and funds the program.

An important aspect of the IRMP is NRC's appraisal of each participating State's environmental monitoring program. The appraisals, conducted every 3 years by NRC regional inspectors, are used to assess the adequacy of the State's program to determine whether to renew the contract. The appraisal process examines the following aspects of the State's program: management support, policies and standards, organization, staff, training, communications, quality assurance, facilities and equipment, and performance. On the basis of this appraisal, the region makes a recommendation on whether the NRC should continue to maintain a contract with the State. No State contract has ever been denied renewal; however, there was a situation in which payment of an invoice from a State was delayed pending actions by the State to correct significant deficiencies in its program.

A selected review of the appraisal reports indicates that the capability and performance of the States vary widely. Some State programs are very good and provide useful material to the regional office concerning licensees' capabilities in environmental monitoring. On the other hand, some States maintain only a limited radiological measurement program and treat the NRC contract as a low priority. In recent years, some States have requested relief from specific monitoring or analysis requirements in the contract because of technical or financial constraints. These requests have generally been granted with no

reduction in the amount of funding provided. Also, in numerous instances, States have not delivered the annual data comparison report within the 120 days specified in the contract. Other situations involve States sending NRC an invoice for work not performed, and in one unusual case, the NRC was not sent an invoice for work until several years after the work was performed.

Overall, the NRC reactor inspection program has shown that licensees are conducting their radioactive effluent and environmental monitoring programs in conformance with NRC regulations. The confidence that has been gained in licensee programs through the inspection program was used as the basis for NRR to originally consider eliminating the environmental monitoring portion of the State contracts and recently to include elimination of the TLD program as well. Recent inspections of licensees' environmental monitoring programs continue to show that these programs are maintained in conformance with NRC requirements, thus providing further support for NRR's position.

CONCLUSION:

The staff has concluded that although the program has provided a source of data independent from the NRC and the licensee, the data are not needed to support the NRC inspection program to ensure that licensee programs are operated and maintained in compliance with NRC requirements.

Eliminating both components of the IRMP will save the NRC \$1.167 million per year in direct contract costs. These funds have not been included in the NRC's fiscal year 1999 Internal Program/Budget proposal.

Note: There are staff members who disagree with the information in this paper and believe it misrepresents the value of the NRC TLD Direct Radiation Network. A proposed Differing Professional Opinion is presented in the attached memo. The differing opinion will be handled in accordance with the agency DPV/DPO procedures, but we are forwarding this paper and the DPO memo to the

Commission because they could affect Commission decisions on the FY 1999 budget.

COORDINATION:

OGC has no legal objection to the staff's position contained herein.

The Office of the Chief Financial Officer has no objection to the resource estimates contained in this paper.

RECOMMENDATION:

The Commission note that, unless otherwise directed by the Commission, the staff will eliminate the IRMP beginning in fiscal year 1999. The staff believes that one year is adequate time for States to prepare for an orderly termination of their program or to find other sources of funding in order to continue the program.

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Attachment: Memo to H. Miller, RI
dtd 7/21 fm DRS, RI
members re: DPO

