November 12, 2003

MEMORANDUM TO: Chairman Diaz
Commissioner McGaffigan
Commissioner Merrifield

FROM: William D. Travers ***/RA/***
Executive Director for Operations

SUBJECT: PUBLIC AVAILABILITY OF INTERAGENCY STEERING COMMITTEE ON RADIATION STANDARDS (ISCORS) DOCUMENTS ON SEWAGE SLUDGE AND ASH PROJECT

The purpose of this memorandum is to inform the Commission of the imminent public availability of several reports (one final and two drafts for comment) from interagency efforts to address concerns raised over incidents of radioactive contamination found in sewage sludge. These reports are being brought to the Commission's attention because of their implications for resolving issues raised for NRC action by the U.S. General Accounting Office (GAO) and the Congress.

In response to a May 1994 GAO Report, "Nuclear Regulation - Action Needed To Control Radioactive Contamination at Sewage Treatment Plants" (GAO/RCED-94-133), and Congressional interest expressed in joint House/Senate hearings, ISCORS formed a subcommittee in 1995 to coordinate efforts to address recommendations raised by the 1994 GAO report. Subcommittee members include representatives from the NRC, the Environmental Protection Agency (EPA), the Department of Energy, the Department of Defense, the State of New Jersey Department of Environmental Protection, the Northeast Ohio Regional Sewer District, and the Middlesex County Utilities Authority. The subcommittee is co-chaired by members from the NRC and the EPA. The first activity of the subcommittee was to design and conduct a survey of radioactivity in sewage sludge and ash from sewage treatment plants, commonly referred to as publicly owned treatment works (POTWs). The objectives of the survey were to (1) obtain national estimates of high probability occurrences of elevated levels of radioactive materials in sludge and ash at POTWs, (2) estimate the extent to which radioactive contamination comes from either NRC/Agreement State licensees or naturally occurring radioactivity, and (3) support rulemaking decisions by the NRC and the EPA.

The survey and subsequent analyses have been completed. As a result of this joint effort, the following three reports will be issued: (1) "ISCORS Assessment of Radioactivity in Sewage Sludge: Radiological Survey Results and Analysis" (NUREG-1775), (2) "ISCORS Assessment of Radioactivity in Sewage Sludge: Modeling to Assess Radiation Doses," and (3) "ISCORS Assessment of Radioactivity in Sewage Sludge: Recommendations on Management of Radioactive Materials in Sewage Sludge." The three reports and the survey database will be publicly accessible at www.iscors.org/. A *Federal Register* notice will announce the availability

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of the reports, expected in November 2003. The first report will be published as a final document while the remaining two will be drafts with a public comment period ending on January 15, 2004. In addition, the Conference of Radiation Control Program Directors has provided names of individuals with dose modeling experience to participate in a peer review of the dose assessment report during the public comment period.

The first report, "ISCORS Assessment of Radioactivity in Sewage Sludge: Radiological Survey Results and Analysis," presents a summary of the information collected in response to the survey questionnaire and developed from laboratory analyses of samples from 313 POTWs. The results are presented in a series of tables for the various classes of POTWs that participated in the survey. The results of the analyses revealed that samples primarily contained naturally occurring radioactive materials (NORM), specifically the radioisotopes radium and uranium. Forty-five radionuclides were detected, with eight radionuclides (Be-7, Bi-214, I-131, K-40, Pb-212, Pb-214, Ra-226, and Ra-228) reported in more than 200 samples. The samples were analyzed either by the U.S. Department of Energy's Oak Ridge Institute for Science and Education in Oak Ridge, Tennessee, under contract to NRC, or by EPA's National Air and Radiation Environmental Laboratory in Montgomery, Alabama.

The second report, "ISCORS Assessment of Radioactivity in Sewage Sludge: Modeling to Assess Radiation Doses," presents dose assessments of seven scenarios: onsite resident, recreation area user, resident of nearby town, landfill neighbor, incinerator neighbor, agricultural application worker, and POTW worker. These theoretical scenarios were selected to represent situations in which a worker or member of the general public might be exposed to sludge. No dose modeling scenario showed potential significant radiation exposures from NRC-regulated material. In two scenarios, the results demonstrated a potential for radon exposure in excess of 4 picocuries per liter, the EPA recommended limit for radon. One of these scenarios involved an individual who was a residential user of former agricultural land on which sludge had been previously spread for 50 to 100 years. The second scenario involved a POTW employee working 40 hours per week in a poorly ventilated facility while in close proximity to large volumes of sludge.

Based on the results in the dose assessment report, ISCORS is developing recommendations to address the issue of NORM activity. The third report, "ISCORS Assessment of Radioactivity in Sewage Sludge: Recommendations on Management of Sewage Sludge and Ash Containing Radioactive Materials at Publicly Owned Treatment Works," is intended to provide these recommendations to POTW authorities and identify conditions under which they may need to take actions.

The completion of this ISCORS assessment of sewage treatment plants will form the basis for a formal response to GAO's recommendations on determining the extent of contamination from sewage sludge discharges from NRC and Agreement State licensees. As mentioned above, ISCORS is issuing the survey report as a final document and the dose modeling and

recommendations documents as drafts for comment. The NRC is publishing for ISCORS the survey report and dose modeling report, and the EPA may similarly publish the recommendations document.

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ITEM NO.:10#4

ORIGINATOR:JONES, DSARE/RPERWMB

SUBJECT:PUBLIC AVAILABILITY OF INTERAGENCY STEERING COMMITTEE ON RADIATION STANDARDS (ISCORS) DOCUMENTS ON SEWAGE SLUDGE AND ASH PROJECT

DATE: 10/21/03

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