March 28, 2001

MEMORANDUM TO: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield

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

SUBJECT: QUARTERLY REPORT ON PROGRESS MADE ON PERTINENT ISSUES RELATED TO CONTROL OF SOLID MATERIALS (JANUARY - MARCH 2001)

On March 23, 2000, the Staff provided the Commission with a paper (SECY-00-0070) which provided information on results of public meetings, status of technical analyses, and recommendations for proceeding on issues concerning the control of solid materials. In an SRM, dated August 18, 2000, the Commission directed the staff to, along with other actions, provide quarterly reports to the Commission on progress made on pertinent issues related to decision-making on control of solid materials. The attached quarterly report provides a summary of progress made for the period January to March 2001. The information in the report is accurate through March 23, 2001. The report for the previous quarter was provided to the Commission on December 18, 2000. Ten days after submittal of the quarterly report to the Commission, it will be placed on the U.S. Nuclear Regulatory Commission's (NRC's) website on control of solid materials (www.nrc.gov/NMSS/IMNS/controlsolids.html).

Attachment: Quarterly Report

cc: SECY
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OCA
OPA
CFO

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Quarterly Report on Progress Made on Pertinent Issues
Related to Control of Solid Materials
January - March 2001

Background

On March 23, 2000, the staff provided the Commission with a paper (SECY-00-0070) which provided information on results of the fall 1999 public meetings, status of technical analyses, and recommendations for proceeding on issues concerning the control of solid materials.

In a Staff Requirement Memorandum (SRM), dated August 18, 2000, the Commission directed the staff to: (1) defer a final decision on whether to proceed with rulemaking, (2) proceed with a National Academies study on possible alternatives for release of slightly contaminated materials, (3) continue the development of a technical information base necessary to support a Commission policy decision in this area, and (4) stay informed of international initiatives in this area, related U.S. Environmental Protection Agency (EPA) and Department of State (DOS) activities, and potential for import and trade issues.

The SRM also directed the staff to provide quarterly reports to the Commission on progress made on all pertinent issues and, approximately three months after completion of the National Academies study, to provide its recommendations on how best to proceed, as well as the status of the technical bases.

In response to the direction in the SRM for quarterly reports, this report provides a summary of progress made on pertinent issues for the period January to March 2001. The report for the previous quarter was provided to the Commission on December 18, 2000. This report is organized numerically by the directions provided in the August 18, 2000, SRM. An integrated schedule of major milestones for the items listed below is provided as Table 1.

1. Actions related to rulemaking/regulatory activities

Consistent with the direction in the August 18, 2000, SRM, rulemaking efforts, including those specifically related to development of an Environmental Impact Statement (EIS) and Regulatory Impact Analysis (RIA), have been deferred. Also as directed by the August 18, 2000, SRM, the staff will provide a paper to the Commission with recommendations on how best to proceed approximately three months after completion of the National Academies study (see Item #2). Activities during this past quarter include:

- The NRC website for this activity, http://www.nrc.gov/NMSS/IMNS/controlsolids.html, has been kept up to date by providing information on the status of ongoing activities in this area.

2. Actions related to proceeding with National Academies study of alternatives

Consistent with the August 18, 2000, SRM, a contract was awarded, on August 31, 2000, for a National Academies study on possible alternatives for release of slightly contaminated materials. The contract calls for a report 12 months after the finalization of the National Academies study committee. Activities during this past quarter are listed here (additional information about these activities can be obtained from the Academies' website which can be accessed through the NRC website):

- On January 3-5, 2001, the National Academies' Provisional Committee on "Alternatives for Controlling the Release of Solid Materials from Nuclear Regulatory Commission - Licensed Facilities" conducted its inaugural meeting. During open sessions of the meeting, Chairman Meserve and staff from the NRC Office of Nuclear Material Safety and Safeguards (NMSS) and Office of Nuclear Regulatory Research (RES) presented the Committee with information on NRC's efforts in this area. In addition, representatives from the U.S. Department of Energy (DOE) and the EPA presented information on their organizations' efforts in this area (see Items #4b and 4c). Members of the Committee raised several topics for discussion with the Chairman and NRC staff including: rationale for current NRC initiative to examine this issue, NRC expectations for the National Academies' study, staff resources (both NRC and Agreement State) devoted to implementing the current approach, and solid material inventories at licensed facilities that may be released. The Chairman of the Committee indicated that a formal request for additional information on some of these issues would be submitted to NRC and that the staff should wait on providing additional information until that request is received.

- On February 2, 2001, the National Academies Provisional Committee was formally approved.

- On March 1, 2001, the NRC staff received, by fax, a letter from the National Academies requesting specific information. Prior to receipt of the National Academies request, the staff of the Office of Nuclear Reactor Regulation, NMSS, RES, and the Office of State and Tribal Programs had already begun developing responses based on an advanced copy of the letter and had requested input from the NRC regional offices on regional experience in this area that might be useful in responding to the National Academies' request. On March 5, 2001, NRC forwarded a copy of the request from National Academies' to the Agreement States and asked that similar input from the Agreement States be sent directly to the National Academies. The majority of the information will be provided within the next several weeks; the remainder of the information will be provided as soon as it is available.

- The National Academies scheduled a second meeting for March 26-28, 2001, for the purpose of gathering information from representatives of a number of different stakeholder groups. The invited stakeholder groups include licensees and licensee associations, metals and cement industry organizations, solid waste organizations, a licensed waste disposal company, a waste broker, States and State associations, and

citizen groups and organizations. A meeting agenda, including a listing of the invited speakers and their organizations, is contained on the Academies' website.

3. Continuing development of a technical information base

Consistent with the August 18, 2000, SRM, the staff is developing a technical information base to support a Commission policy decision in this area. Developing this information represents a multi-disciplinary effort between NMSS and RES.

3a. NUREG-1640

In March 1999, draft NUREG-1640, Volumes 1 & 2, "Radiological Assessments for Clearance of Equipment and Materials from Nuclear Facilities," was published for public comment. NUREG-1640 provides a methodology for estimating potential individual doses for steel, aluminum, copper and concrete based on the concentration of radionuclides in the material. As a result of comments from the fall 1999 public meetings, the staff contracted with the Center for Nuclear Waste Regulatory Analyses (CNWRA) to conduct an independent technical review of draft NUREG-1640. The CNWRA's review was received in November 2000. Activities during this past quarter include:

- Public comments on draft NUREG-1640 and the CNWRA review were assessed and incorporated into a statement of work to develop a final NUREG-1640.

3b. Technical Basis Contract for Inventory, Doses, and Costs

This contract is to develop information on inventory of solid material potentially available for release, potential collective doses and the potential for exposure to multiple sources, and costs associated with handling of these materials. This contract was re-bid as a result of conflict of interest issues identified with the previous contractor and a contract was awarded in December 2000 to Sanford Cohen & Associates (SC&A). Activities during this past quarter include:

- Technical meetings were held with SC&A in January and February 2001 to discuss approaches towards developing inventories of materials, dose analyses, and cost estimates.

3c. Development of dose models for soil reuse

The NRC staff is developing technical bases for estimating exposures from soil reuse as a result of potential licensee requests for release of soil. As part of this effort, Draft NUREG-1725, "Human Interaction With Reused Soil: A Literature Search," (prepared for NRC by the National Agricultural Library (NAL)) identifies information sources and data for the technical basis and was issued for public comment in June 2000. Activities during this past quarter include:

- A new contract with the CNWRA began in February 2001 to perform a scoping analysis of reuse scenarios for soils released from NRC-licensed facilities. Scenarios for the

CNWRA scoping analysis were developed and information needs for estimating parameter distributions were identified. The dose modeling is being coordinated with similar dose modeling efforts for sewage sludge and for metals and concrete in NUREG-1640 to utilize established technical bases and common scenarios.

- In January 2001, a focused information search began to assist in addressing public comments on NUREG-1725. The search will include information to assist in estimating parameter distributions for the soil scenarios.

3d. Measurability/Detectability

The NRC staff is developing technical bases concerning the ability to conduct radiation surveys of solid materials at levels near background. Coordinated contract support efforts are ongoing to provide a framework for the design and implementation of surveys for solid materials. Environmental Measurements Laboratory (EML) is examining common off-the-shelf instrumentation and Oak Ridge Institute for Science and Engineering (ORISE) is examining advanced instrumentation. A technical basis is being developed to determine the most advantageous protocol based on the solid material being released, survey instrumentation, required laboratory analyses and applicable release criteria. The protocols being addressed include material surface scans, direct measurements of surface activity and smears for assessing removable activity. The project will analyze the appropriate number of survey measurements and the determination of contamination that may be present in the volume of the material–subsurface measurement. The University of Tennessee, under contract to NRC, is preparing a proof-of-concept report to test the subsurface measurement modeling developed by EML. Activities during this past quarter include:

- The staff is evaluating draft sections of the detectability/measurability report being prepared by EML and ORISE.

4. Other actions

4a. International initiatives

The International Atomic Energy Agency (IAEA) has developed separate clearance levels for radionuclides that are based on a 10 µSv per annum (1 mrem/yr) criterion. NRC and EPA staff participated in consultations in mid and late 2000 with IAEA member countries on the development of the assumptions and parameters used to derive the IAEA's clearance levels. The European Union (EU) has established a clearance criterion of 10 µSv per annum (1 mrem/yr). The last of a series of clearance guidance documents is being finalized. Activities during this past quarter include:

- NRC staff participated in Technical Committee Meeting on Radiological Criteria for Long-lived Radionuclides in Commodities, from February 26 to March 2, 2001, at IAEA Headquarters in Vienna, Austria. The purpose of the meeting was to provide review and comment on a draft Safety Guide that is intended to provide guidance to international and national authorities on internationally applicable activity concentration levels for

commodities, particularly foodstuffs and wood, that contain long-lived radionuclides as a result of past accidents and activities that were not conducted within the requirements of the Basic Safety Standards. These would define a level of radionuclide concentration in commodities below which they may be freely traded on the international market without any further consideration. The Technical Committee recommended that all scenarios used in development of draft standard Working No. DS161 (January 2001) be re-examined with regard to the use of conservative parameter values in achieving a target annual dose on the order of 10 µSv (1 mrem/yr), but that this should be done by a combined group of experts developing the clearance and the commodities documents to ensure consistency in values.

4b. EPA/DOS activities

EPA participated in the fall 1999 public meetings and as one of the stakeholders at the May 9, 2000, Commission meeting. NRC and EPA staff have coordinated efforts on developing technical information bases on scenarios and pathways related to potential exposures. The International Radioactive Source Management (IRSM) initiative, supported by DOS, has been inactive. Activities during this past quarter include:

- An EPA representative presented information on EPA's clearance efforts at the National Academies meeting on January 3, 2001, noted in Item #2 above. The presentation provided information on historical aspects of EPA's activities, technical analyses, and orphan source and international initiatives. EPA noted that it is focusing most of its efforts on orphan source issues and on the interception of imports with sufficient radioactive content to warrant regulatory control and that EPA does not have an active program to set clearance standards in the U.S.

- EPA staff participated in an IAEA Technical Committee Meeting on Radiological Criteria for Long-lived Radionuclides in Commodities in Vienna, Austria, from February 26 to March 2, 2001 (see Item #4a above).

- EPA has been preparing an update to its 1997 analysis contained in the "Technical Support Document on the Evaluation of the Potential for Recycling of Scrap Metals from Nuclear Facilities." The update would add analysis of copper and aluminum to the existing analysis of carbon steel. The revision is expected in March 2001.

- In coordination with the U.S. Coast Guard, the U.S. Customs Service, the State of Louisiana, and two volunteer scrap metal companies, EPA is developing a scrap metal monitoring program at the port of New Orleans. This three-month pilot program, which is scheduled to begin in July 2001, involves radiation monitoring of imported scrap metal entering the U.S. NRC is maintaining cognizance of this effort and is preparing a memorandum to its regional offices requesting that they coordinate with Headquarters with regard to any questions or requests for assistance regarding import of solid material containing radioactive materials.

4c. Department of Energy activities

DOE participated at the fall 1999 public meetings and, as one of the stakeholders, at the May 9, 2000, Commission meeting. During calendar year 2000, Secretary Richardson placed moratoriums on DOE's release of volumetrically contaminated metals and on release of scrap metal for recycling if contamination is detected using appropriate instrumentation. In October 2000, DOE published, for public comment, a revision of the internal DOE Order 5400.5 which included provisions for release of materials based on a detectability standard. NRC comments on the revised order were sent to DOE on December 4, 2000; the NRC position noted in the letter is that a detectability-based standard is inconsistent with a risk-informed approach. Activities during this past quarter include:

- A DOE representative presented information on DOE's plans for control of solid materials at the National Academies meeting on January 3, 2001, noted in Item #2 above. The presentation focused on DOE's policy and requirements for control of releases of materials with residual radioactivity.

- On January 19, 2001, Secretary Richardson of DOE issued a memorandum on "Internal Reuse and Recycling at Department of Energy Facilities." The memorandum reported on a number of efforts underway to provide DOE with long-term internal reuse and recycling alternatives, including the potential for use of various electric arc furnace technologies that might provide cost-effective and safe internal recycling for DOE surplus metals; a recycling path internal to DOE for DOE's excess lead inventory; a proof of principle demonstration for reuse of metal parts with transuranic contamination; and reuse of excess nickel in the planned HLW repository.

- On January 19, 2001, Secretary Richardson issued a memorandum on "Managing the Release of Surplus and Scrap Materials." The memorandum noted that the moratoriums on unrestricted release of volumetrically contaminated metals and on the recycling of all metals from radiation areas within DOE facilities remain in effect. The memorandum also noted, in light of public comment received on the draft revision to the DOE standard 5400.5, that additional deliberation is necessary and that an EIS should be prepared. In addition, the memorandum forwarded guidance to the DOE sites to help improve their monitoring and release practices. The guidance is consistent with existing provisions of DOE Order 5400.5, and includes provisions regarding improving DOE reporting on releases.

- On January 19, 2001, Secretary Richardson issued a memorandum on "Department-Wide Lead Reuse Policy." The memorandum issued Department policy stating that reuse of lead metal and lead products is to take precedence over the purchase of new lead metal and lead products.

- Secretary Richardson's internal memo to DOE managers directing the development of an EIS is publicly available on the DOE website at: http://quickplace.eshportal.net/quickplace/eh-41/main.nsf/$defaultview/2B5CCBF0D981582F85252569EA004FCF23/$File/Managing0119.pdf?Open/Element. The memo states that EM should prepare a notice of intent.

4d. Evaluation of case-specific situations

On August 7, 2000, the staff issued internal guidance on handling case-specific licensing decisions on release of solid materials from licensed facilities during the period that the National Academies' study is in progress. This guidance was forwarded to the Agreement States on August 22, 2000. The guidance states that requests for release of solid materials will be handled on a case-by-case basis using existing guidance, i.e., Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors," and its equivalent, Fuel Cycle Policy and Guidance Directive FC 83-23, for materials licensees and Office of Inspection and Enforcement Circular 81-07 and Information Notices 85-92, "Surveys of Wastes Before Disposal From Nuclear Reactor Facilities," and 88-22, "Disposal of Sludge from Onsite Sewage Treatment Facilities at Nuclear Power Stations." During the past quarter, the staff has been involved in ongoing case-specific reviews regarding implementation of the guidance in the August 7, 2000, memorandum.

Integrated Schedule Overview of Items in Quarterly Report on
Pertinent Issues Related to Control of Solid Materials

	1st qtr 2001 January -March 2001	2nd qtr 2001 April - June 2001	3rd qtr 2001 July -September2001	4th qtr 2001 October - December 2001	1st qtr 2002 January - March 2002	2nd qtr 2002 April -June 2002	Post 2nd qtr 2002 past July 2002
1.Commission interface/ public input	Quarterly report - 3/01	Quarterly report - 6/01	Quarterly report - 9/01	Quarterly report - 12/01	Quarterly report - 3/02	SECY paper on NAS study results ~5/02 (~3 mo after NAS study)	SRM and next steps - TBD
2. NAS study	1st Committee mtg & NRC briefing 1/01; 2nd Committee mtg - 3/01				Complete report - 2/02		
3a. NUREG-1640	SOW for final NUREG in Div of Contracts - 3/01			Final individual doses - 12/01			
3b. Tech Basis - contracting activities	Contractor meetings 1/01 and 2/01						
3b. Tech basis- Inventory		Letter report on available and needed data - 5/01	◆ Draft NUREG - 7/01 ◆ Letter rpt on literature on current practice that cause NARM/TENORM to enter commerce - 7/01 ◆ Letter rpt on bkg level of radioactivity in various matls and eqmt - 7/01 ◆ Feasibility study on making msmts to support above info 9/01			Letter reports on build-up of radioactivity - 6/02	Draft NUREG on build-up of radioactivity - 11/02
3b. Tech basis - collective doses and multiple exposures			◆ Letter rpt on additional scenarios - 7/01 ◆ Listing of multiple exposure scenarios - 7/01		◆ Draft NUREG on collective doses - 1/02 ◆ Draft NUREG on added scenarios - 2/02		Draft NUREG on multiple exposures - 7/02;
3b. Tech basis - costs		Interim letter report on cost models & format 6/01				Letter report on costs - 4/02	Draft NUREG on doses from other matls (rubble, wood, etc) - 9/02

	1st qtr 2001 January -March 2001	2nd qtr 2001 April - June 2001	3rd qtr 2001 July -September2001	4th qtr 2001 October - December 2001	1st qtr 2002 January - March 2002	2nd qtr 2002 April -June 2002	Post 2nd qtr 2002 past July 2002
3c.Soil - NUREG1725	NAL focused search on parameters - 1/01			Final NUREG-1725 - 11/01			
3c. Soil - Soil scenario analysis	CNWRA scoping contract - 2/01		◆ Draft NUREG on scoping analysis of scenarios 9/01; Steering Group mtg on next steps 9/01				
3d.Surveys - ORISE			◆ Draft NUREG on survey analyses - 9/01				
3d. Surveys - EML			Draft NUREG on survey analyses - 9/01				
4. Other							
4a. International Initiatives	IAEA TCM on Commodities, 2-3/01	Joint RASSC/WASSC Meeting, 4/01					
4b. EPA	Briefing of NAS, 1/01 IAEA mtg 2-3/01 Update of TSD 3/01						
4c. DOE	Briefing of NAS, 1/01 Secretary memos on control of solid materials, 1/01						