

**THE NUCLEAR REGULATORY COMMISSION
AUTHORIZATION ACT FOR FISCAL YEAR 2000**

HEARING

BEFORE THE
SUBCOMMITTEE ON ENERGY AND POWER
OF THE

COMMITTEE ON COMMERCE
HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTH CONGRESS

FIRST SESSION

ON

H.R. 2531

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WEDNESDAY, JULY 21, 1999

HOUSE OF REPRESENTATIVES,
COMMITTEE ON COMMERCE,
SUBCOMMITTEE ON ENERGY AND POWER,
Washington, DC.

The subcommittee met, pursuant to notice, at 2 p.m., in room 2322 Rayburn House Office Building, Hon. Joe Barton (chairman) presiding.

Members present: Representatives Barton, Stearns, Burr, Whitfield, Shimkus, Bryant, Ehrlich, Hall, McCarthy, Sawyer, and Markey.

Staff present: Kevin V. Cook, professional staff member; Betsy Brennan, legislative clerk; Rick Kessler, minority counsel, and Sue Sheridan, minority counsel.

Mr. BARTON. The Subcommittee on Energy and Power of the Commerce Committee will come to order.

Today, we're going to have a hearing on the reauthorization of the Nuclear Regulatory Commission. The Commission has proposed legislation reauthorizing its programs for the fiscal year 2000, as well as making a number of policy changes affecting how the NRC performs its regulatory responsibilities.

Congressman Hall and I have introduced, by request of the Commission and the President, the NRC proposal as H.R. 2531, the Nuclear Regulatory Commission Authorization Act for Fiscal Year 2000. Introducing legislation by request means that the sponsors do not necessarily agree with every provision contained in a requested bill. In this specific case, I have serious reservations about foreign ownership language, as it has been proposed by the NRC.

The hearing today may surface other areas of concern by members of the subcommittee. However, the proposal that has been introduced by Congressman Hall and myself does provide an excellent starting point for reauthorization legislation. The Nuclear Regulatory Commission performs a vital function for the nation, regulating the civilian use of nuclear materials and ensuring that public health and safety are fully protected. Because the NRC is funded almost entirely by user fees, it is essential that we renew the authority to collect these fees so the Commission may continue to perform its necessary functions.

The current authority expires at the end of September 1999, so we have a limited time period available to enact legislation renewing the authority. This hearing will provide us with an opportunity

to address these changes that have been proposed by the NRC and perhaps other changes to the authorizing statutes.

I would remind members of the subcommittee and the full Commerce Committee passed a similar reauthorization bill last year by voice vote, but the bill unfortunately never came up for a vote on the House floor.

The latest proposal from the NRC includes several provisions that were not in last year's bill. One of these is the foreign ownership provision that I've already mentioned earlier, and it is also one which I oppose. We may find the rest of our members have problems with this and other provisions of the bill.

Given our need to move the bill expeditiously to meet the September 30 deadline, I suggest that we follow the motto of keep it simple. If we identify any controversial or problematic provisions from our hearing today, my strategy and my advice to the subcommittee would be to delete those provisions prior to mark up.

Some of these issues are, no doubt, worth more debate. And some may even be worth a separate hearing later in the year. External regulation may be one such topic. Reform of the NRC regulatory process may be another.

The Center for Strategic and International Studies is on the verge of releasing a major study on the regulatory process for nuclear reactors. This study will identify problems and opportunities for improvement. The study may be a useful jumping off point for us to address NRC regulatory reform in more detail.

However, I again advise that we may want to defer some of the more complex issues for the future and explore in today's hearing things that we can solve today.

Our first priority must be to reauthorize the user fee by the end of September. Beyond that, we should include only those other legislative provisions that we can readily agree upon.

I want to welcome the Honorable Greta Dicus—am I saying that right?

Ms. DICUS. That's correct.

Mr. BARTON. Okay. The Honorable Greta Dicus is the new chairman of the NRC; and also welcome her colleagues—Commissioner McGaffigan, Commissioner Merrifield. I know Commissioner Diaz wanted to be with us, but he had a prior obligation to meet with nuclear regulatory authorities in Mexico.

I also welcome the Honorable Tim Fields, Assistant Administrator for Solid Waste and Emergency Response at the EPA. I look forward to hearing the testimony of all of our witnesses.

The Chair would recognize the distinguished ranking member, Mr. Hall for an opening statement.

Mr. HALL. Mr. Chairman, thank you and thank you for covering the hopefully important aspects of this hearing. As noted, by request, the two of us introduced a proposal to make a number of changes in the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974 that the Nuclear Regulatory Commission believe would improve their operations; and we are going to have a chance to examine those. And like you, I appreciate the importance of the make up of the committee today to bring us first hand from the very top what your needs are.

Specifically, I have some questions about changing the foreign ownership of power reactors, the fee structure, and how these reforms are going to improve the efficiency and operation of the Commission in carrying out its licensing and regulatory functions on behalf of the United States nuclear industry.

As the responsible agency of the Federal Government for regulating the civilian use of radioactive materials, including industrial applications, medical and academic uses, we have some questions on this matter.

Mr. Dingell has raised some questions on several aspects of this topic in a recent letter, and I am sure would be interested in the Commission's response to those issues.

With that, I just ask unanimous consent to put my entire statement in the record, and yield back my time.

Mr. BARTON. Without objection, so ordered.

The gentleman from North Carolina, Mr. Burr is recognized.

Mr. BURR. Thank you, Mr. Chairman.

Mr. BARTON. For an opening statement only.

Mr. BURR. I thank the chairman. I thank you for holding this hearing on H.R. 2531.

Let me say that I am interested in hearing from both panels in detail about the progress being made to assure that user fees paid the NRCC—NRC—are devoted to regulation. Since its inception in 1990, some of NRC's activities unrelated to the regulation of nuclear power plants have been paid for with user fees. Estimates on the expenditures of user fees for unrelated programs is estimated at near \$50 million.

Even though the Appropriations Committee that has jurisdiction over the NRC has urged the White House and the NRC to remove these unrelated expenditures from user fees to licenses, the Administration and the OMB in particular have yet to accept this request. It has been noted that the NRC fiscal year 2000 budget recommendation to the OMB included a proposal that these unrelated programs be funded—being funded by user fees be supported by general fees. OMB is reported to have overruled this proposal.

Also, Mr. Chairman, I am concerned about the NRCC—the NRC walking away from its responsibilities to regulate the disposal of low activity radioactive waste produced—

Mr. BARTON. I think you meant NRC, not NRCC?

Mr. BURR. I canceled that last slip.

I am concerned about the NRC walking away from its responsibilities to regulate the disposal of low activity, radioactive waste produced to support our atomic weapons program. I understand that, with the NRC's blessing, this radioactive material is being sent to California and Idaho for disposal in standard landfills not licensed by the NRC. I am interested in hearing the Commission's explanation for not regulating this nuclear waste.

Again, I thank the chairman for this hearing, and look forward, and welcome our witnesses.

Mr. BARTON. Yes, the NRCC eliminated its low-level nuclear waste program many years ago.

Now, I would like to welcome the gentlelady from Missouri, Ms. McCarthy, for an opening statement.

Ms. MCCARTHY. Thank you, Mr. Chairman, and I would request that I could revise and extend my comments. I will be very brief this morning. I thank you.

Mr. BARTON. Without objection.

Ms. MCCARTHY. Thank you very much for this hearing and look forward to the discussions that we will have, and I am particularly interested in your thoughts—our panelists' thoughts—and justifications for those sections which do call for ending the on record hearing requirements for allowing foreign ownership of nuclear facilities and centralizing the anti-trust review process. Those three sections I am concerned about, and how, as you address them, you plan to protect the consumers. And I do share the chairman's concern that we advance wisely on these as we look to these issues of disclosure and equity; and that must be the foundation of our actions as we reauthorize this most important act.

I look forward to the testimony today, Mr. Chairman, and will revise my remarks and submit them appropriately.

Mr. BARTON. The Chair recognizes the former Congressman, Mr. Chapman, from the great State of Texas, whose cell phone rang as soon as he walked in the room a minute ago, so he had to step outside. Glad to have you with us.

Lukewarm applause from the Republican side.

The gentleman from Kentucky, Mr. Whitfield, is recognized for an opening statement.

Mr. WHITFIELD. Mr. Chairman, thank you. I am glad to see you in such good mood today. And I would just say—

Mr. BARTON. It is early.

Mr. WHITFIELD. We are running a little bit late today, so I am not going to make a long opening statement. I am delighted we are having this hearing. I have 1 of the 2 uranium enrichment plants in the country in my district, and do have a few questions about some of your proposed changes for the NRC. I would yield back the balance of my time.

Mr. BARTON. I thank the gentleman. The gentleman from Ohio, Mr. Sawyer, is recognized for an opening statement.

Mr. SAWYER. Mr. Chairman, I thank you for holding this hearing. I look forward to the testimony from our witnesses. I would like to associate myself with everything that has been said so far, and yield back the balance of my time.

Mr. BARTON. The gentleman from Tennessee, Mr. Bryant, is recognized.

Mr. BRYANT. To continue rolling on this, I think we are all interested in hearing from this panel. I would simply thank you for holding this hearing, and I do want to associate myself with the remarks specifically of Mr. Burr, in this case, and yield back the balance of my time.

Mr. BARTON. The gentleman from Massachusetts, Mr. Markey, is recognized for an opening statement.

Mr. MARKEY. Thank you, Mr. Chairman, and we welcome our new Chair—

Ms. DICUS. Thank you.

Mr. MARKEY. [continuing] of the Nuclear Regulatory Commission. Congratulations.

Ms. DICUS. Thank you.

Mr. MARKEY. You have already served on the Commission, and you know that the Commission is buffeted by many winds, that you are in the middle of a clamor on all sides. The nuclear industry is crying that the burden of regulations must be jettisoned so that it can sail swiftly in the competitive race. Neighbors of nuclear plants are yelling that they risk being sunk in the environmental and safety undertow.

Some of my colleagues are shooting shots across the bow, warning that industry must be left alone. I may even have had a word or two on some of these subjects from time to time. And so, as you take the helm, I offer you a simple compass point through the noise and the distractions.

As you know, the sole purpose, the sole purpose of the Nuclear Regulatory Commission is to ensure that our nuclear power plants and other nuclear facilities are as safe as possible. The NRC was deliberately split off from the old Atomic Energy Commission 25 years ago precisely so that it could have only one purpose. When your licensees tell you that they cannot afford safety measures, that they will have to shut down unless you save them from having to spend more money on safety—you can sympathize, of course, but their economic issues are not your problem. There is nothing wrong with saving money and avoiding unnecessary expense, but that is not your job. That is why we split it off 25 years ago.

I am deeply concerned that, as nuclear utilities rush to compete in newly deregulated electricity markets, safety is being sacrificed. And I am concerned that the NRC has not been sufficiently vigilant in its oversight. For example, as utilities cut payrolls and shorten plant outages, workers have been complaining about excessive overtime. Plants are being run and repaired by workers who are dead on their feet. Shortened plant outages and cost concerns also are the reasons it is taking decades to fix faulty fire barriers in plants throughout the country.

Utilities are even complaining about the expense of security equipment and personnel to protect against terrorist attack. Faced with realistic drills that reveal security weaknesses, they have sought not to increase security, but to end the drills. The NRC has reacted by decreasing overtime inspections, giving licensees hundreds of exceptions to fire regulations, and suspending security drills.

At the same time, the NRC is being accused, sometimes by its own staff, of bowing to undue influence by the industry it is supposed to regulate, the NRC is relaxing Sunshine Act Rules, which were intended to ensure that the public business is conducted in public view.

The NRC actually has revived a rule it had left for dead 14 years ago that would allow the Commission to meet in secret, without a recording or a transcript, and perhaps without any record that the meeting occurred as long as there is not an intent to discuss final decisions.

The proposed rule presumes the public will keep its “Eyes Wide Shut” on nuclear safety. This is the context in which we look at the authorization bill, H.R. 2531.

I certainly support making sure that the NRC has sufficient funds to carry out its public safety mandate, and I am happy to

support additional security authority that the NRC seeks. But it seems to me that allowing foreigners, possibly even Iraq and Iran, to own a nuclear power plant on our soil will add another threat to our security. Taking hearings off the record would send another signal that the Commission seeks to operate by secrecy and stealth rather than transparency and openness. And running roughshod over EPA's standards for Superfund sites suggests that those who live near a nuclear plant do not deserve the same environmental protection which neighbors of chemical plants receive.

I have concerns about a number of other provisions in this bill and several other aspects of NRC's current oversight of its licensees. I intend on pursuing them both in this hearing, and, if possible, with you personally so that I can raise my concerns and see how the NRC is going to deal with them.

I thank you, Mr. Chairman.

[The prepared statement of Hon. Edward J. Markey follows:]

PREPARED STATEMENT OF HON. EDWARD J. MARKEY, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF MASSACHUSETTS

Thank you, Mr. Chairman.

I would like to warmly welcome our new Chairman of the Nuclear Regulatory Commission, Ms. Greta Joy Dicus. I look forward to working closely with you. Since you have already served a few years on the Commission, you know that the Commission is buffeted by many winds, that you are in the middle of a clamor from all sides. The nuclear industry is crying that the burden of regulations must be jettisoned so it can sail swiftly in the competitive race. Neighbors of nuclear plants are yelling that they risk being sunk in the environmental and safety undertow. Some of my colleagues are shooting shots across the bow, warning that industry must be let alone. I may even have a word or two to say to you from time to time.

And so as you take the helm, I offer you a simple compass point through the noise and the distractions. As you know, the *sole* purpose of the NRC is to ensure that our nuclear power plants and other nuclear facilities are as safe as possible. The NRC was split off from the rest of the old Atomic Energy Commission precisely so that it could have that one purpose. When your licensees tell you they cannot afford safety measures, that they will have to shut down unless you save them—you can sympathize, of course, but their economic issues are not your problem. There is nothing wrong with saving money and avoiding unnecessary expense, but we must not sacrifice safety on the altar of profit.

I am deeply concerned that as nuclear utilities rush to compete in newly deregulated electricity markets, safety is being sacrificed, and I am concerned that the NRC has not been sufficiently vigilant in its oversight. For example, as utilities cut payrolls and shorten plant outages, workers have been complaining about excessive overtime. Plants are being run and repaired by workers who are dead on their feet. Shortened plant outages and cost concerns also are the reasons it is taking *decades* to fix faulty fire barriers in plants throughout the country. Utilities are even complaining about the expense of security equipment and personnel to protect against terrorist attack—faced with realistic drills that reveal security weaknesses, they have sought not to increase security but to end the drills. The NRC has reacted by decreasing overtime inspections, giving licensees hundreds of exceptions to fire regulations, and suspending security drills.

At the same time that the NRC is being accused—sometimes by its own staff—of bowing to undue influence by the industry it is supposed to regulate, the NRC is relaxing Sunshine Act rules intended to ensure that the public business is conducted in public view. The NRC actually has revived a rule it had left for dead fourteen years ago that would allow the Commission to meet in secret without a recording or transcript and perhaps without any record that the meeting occurred, as long as there is no intent to discuss final decisions. This proposed rule presumes the public will keep its "Eyes Wide Shut" on nuclear safety.

This is the context in which we look at the authorization bill, H.R. 2531. I certainly support making sure that the NRC has sufficient funds to carry out its public safety mandate. And I am happy to support additional security authority that NRC seeks. But it seems to me that allowing foreigners—possibly even Iraq or Iran to own a nuclear plant on our soil will add another threat to our security. Taking hear-

ings off the record would send another signal that the Commission seeks to operate by secrecy and stealth rather than transparency and openness. And running roughshod over EPA's standards for Superfund sites suggests that those who live near a nuclear plant do not deserve the same environmental protection which neighbors of chemical plants receive.

I have concerns about a number of other provisions in the bill and about several other aspects of NRC's current oversight of its licensees, and I hope to explore some of them in questions. But mostly I hope that our new Chairman will keep a steady hand on the tiller and guide the Commission and the industry always in the direction of greater public health and safety and environmental protection.

Mr. BARTON. Thank you, Congressman Markey. The gentleman from Illinois, Mr. Shimkus, for an opening statement.

Mr. SHIMKUS. Thank you, Mr. Chairman, I also want to associate my comments with Congressman Burr, and I want to focus on the user fee issue. Truth in budgeting, I think this Congress has—

Mr. BARTON. Could we have order so that Mr. Shimkus' opening statement can be heard, please?

Mr. SHIMKUS. Gosh. Thank you, Mr. Chairman.

But we have cast a lot of votes since I have been a member on pulling trust funds off budget—the Highway Trust Fund, the Aviation Trust Fund. We believe we have done that with Social Security. I think the standards as we continue to do—move to truth in budgeting, those standards should also filter down through agencies and commissions. That brings up the question about the use—the fees collected to the NRC and—for operation or programs versus the regulatory aspects. I know there is some questions out there, and so I will be listening for in your comments and statements and probably follow up with some questions later on. But I think if we are willing to start pulling apart the budgetary process so that the public understands where our fees are collected and where they are going to, I think the commissions and agencies of this government also should do the same. And so I look forward to the hearing, and I yield back my time, Mr. Chairman.

Mr. BARTON. Now the distinguished vice chairman, Mr. Stearns of Florida, for an opening statement.

Mr. STEARNS. I thank my colleague and the chairman. I have no opening statement, and I look forward to the hearing.

Mr. BARTON. Okay. Hearing—seeing no other members present that wish to make an opening statement, all members not present that do come to the hearing will have their statements in the record.

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF HON. TOM BLILEY, CHAIRMAN, COMMITTEE ON COMMERCE

Thank you, Chairman Barton. Nuclear energy plays an important role in our everyday lives, from providing a reliable and emission-free source of electricity to bringing us many life-saving technologies in the medical field. The Nuclear Regulatory Commission has the responsibility to ensure that these nuclear reactors and nuclear materials are used in a safe and responsible manner. The Commission also plays a critical role in the Yucca Mountain repository for high-level radioactive waste, and, as the Commerce Committee considers ways to reorganize the troubled Department of Energy, the NRC may become involved in the external regulation of some of those DOE facilities and operations. The Commission also provides invaluable assistance to other Federal agencies and to international partners on matters of nuclear safety. I would encourage the Subcommittee to move promptly on legislation reauthorizing the NRC. As the annual operations of the NRC are funded almost entirely by fees paid by the reactor and materials licensees, it is critical that we renew the authority for the NRC to collect such user fees. We have only 10 weeks

left before the current authority expires, so I hope the Subcommittee will move this bill expeditiously.

Certainly give serious consideration to the other elements in NRC's legislative proposal. Many of these ideas have merit, and were part of H.R. 3532 as reported out of the Commerce Committee last year. But I urge the Members not to get so wrapped around some of the more difficult issues that we lose sight of our primary objective, which is to make sure that NRC can collect the user fees so it stays in business next year.

I look forward to hearing the testimony of the Commissioners, and of the other witnesses before us today.

PREPARED STATEMENT OF HON. PETER DEUTSCH, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF FLORIDA

Mr. Chairman, thank you for holding today's hearing on H.R. 2531, The Nuclear Regulatory Commission Authorization Act for Fiscal Year 2000. In reviewing the list of witnesses today, I look forward to hearing from the Nuclear Regulatory Commission (NRC) on the regulation of byproduct materials under Section 11(e)(2) of the Atomic Energy Act. I understand that a ruling by the NRC is permitting the disposal of low level radioactive waste into standard landfills not licensed by the Commission. I am also aware that Ranking Member Dingell recently wrote the Commission on this subject with a request that the NRC respond by Thursday, July 22, 1999. As the disposal of radioactive waste in unlicensed standard landfills is of great concern to many Americans, I look forward to hearing from the NRC on this important health and safety matter.

Mr. BARTON. Without objection at this point in the record, we would now like to welcome the Commissioner and Mr. Fields. We are going to recognize the distinguished chairwoman, Commissioner Dicus. I understand that Commissioner Merrifield and Commissioner McGaffigan also have a brief statement. And Mr. Fields, and then we will take questions from the panel. So, Chairwoman, we welcome and you are recognized for such time as you may consume.

STATEMENTS OF HON. GRETA JOY DICUS, CHAIRMAN; ACCOMPANIED BY HON. EDWARD MCGAFFIGAN, JR., COMMISSIONER; HON. JEFFREY S. MERRIFIELD, COMMISSIONER, NUCLEAR REGULATORY COMMISSION; AND HON. TIMOTHY FIELDS, JR., ASSISTANT ADMINISTRATOR FOR THE OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, ENVIRONMENTAL PROTECTION AGENCY

Ms. DICUS. Thank you, Mr. Chairman and members of the subcommittee. Of course, I am pleased to appear today to discuss the NRC's authorization for fiscal year 2000, as well as NRC's legislative proposals. And as is noted, I have two of my colleagues with me today—Commissioner Edward McGaffigan, to my left, and Commissioner Jeffrey Merrifield, to my right. And as noted, Commissioner Diaz regretfully could not be with us today due to a prior engagement.

As you know, the past year at the NRC has been a time of intense, but rather carefully structured change, both organizationally and in our fundamental programs. These changes have been accelerated and enhanced by the constructive interest shown by our congressional oversight committees and by our other stakeholders.

I believe it is fair to say that our stakeholder interactions are both more extensive and more productive than ever before. The NRC is improving its internal efficiency and effectiveness, such as streamlining its operations and consolidating its functions. We are

changing our regulations to be more risk informed. We have entered the first phase of implementing our new reactor oversight process. We are making improvements in the areas of power reactor license renewal, license transfers, spent fuel dry cast storage, decommissioning uranium recovery, fuel cycle facility and licensing, and medical oversight.

We have streamlined our hearing process for reactor license renewals and license transfers. Our proposed fiscal year 2000 budget, when adjusted for inflation, represents the lowest budget in the last two decades.

Similarly, by the end of this fiscal year, our staffing levels will be the lowest in 20 years. We also have integrated our performance plan and our budget in a manner that links agency performance goals, strategies, performance measures, and resources consistent with the Government Performance and Results Act.

I would like to review very briefly and quickly the legislative proposals we have submitted for consideration of the 106th Congress.

We have urged the approval of several amendments that would help to deter terrorist activity related to nuclear facilities and special nuclear materials: one, to authorize guards at Commission-designated facilities to carry and use firearms where needed, to prevent radiological sabotage or the theft of special nuclear materials; two, to make it a Federal crime to bring unauthorized weapons or explosives into NRC licensed facilities; and three, to clearly prohibit sabotage during the construction phase of production, utilization, and waste storage facilities.

We also have proposed a number of amendments to increase Commission efficiency and flexibility. These include: first, to allow continuation of a Commissioner's service past term expiration under certain circumstances, to maintain a Commission quorum, and to offset delays in the confirmation process; two, provide flexibility on hearings associated with the Commission licensing of new uranium enrichment facilities; three, to make explicit that a combined construction and operating license would allow up to 40 years of operation; and four, to eliminate the requirement for an NRC office in the District of Columbia.

Two proposed amendments would eliminate what we feel are duplicative regulatory roles. One is to eliminate NRC's anti-trust reviews; and two, establish NRC and Agreement State jurisdiction over radiological clean-up criteria for facilities that are licensed by the Agreement States or the NRC.

Now, the final two proposed amendments would relax what we feel are either unnecessary or outdated provisions. One, which has already been mentioned, eliminating prohibitions on foreign ownership of power or research reactors; and two, providing general gift acceptance authority commensurate with the provisions that other agencies have.

I would like now to take this opportunity to acknowledge and thank you for your efforts, Mr. Chairman, in introducing, by NRC request, and to Congressman Hall both our reauthorization bill and our legislative proposals. And moreover, I would like to thank all of the members of this subcommittee for the sustained interest that you have taken in supporting and improving the NRC. We value

your continued interest and your support, and I thank you very much.

[The prepared statement of Greta Joy Dicus follows:]

PREPARED STATEMENT OF GRETA JOY DICUS, CHAIRMAN, NUCLEAR REGULATORY COMMISSION

INTRODUCTION

Mr. Chairman and members of the Subcommittee, the Commission is pleased to appear before you to discuss the agency's authorization for Fiscal Year (FY) 2000 as well as the NRC's legislative proposals. I am pleased to be accompanied today by my colleagues, Commissioner Edward McGaffigan, Jr., and Commissioner Jeffrey Merrifield. Commissioner Nils Diaz regretfully was unable to attend today due to prior engagements. I will begin by providing the Subcommittee with a summary of ongoing NRC efforts designed to increase our efficiency and effectiveness in nuclear safety regulation.

SUMMARY

The highest NRC priority is to fulfill our fundamental mission of ensuring the adequate protection of public health and safety and the environment. Our main focus in FY 2000 will be to achieve the following performance goals for our regulatory program: maintaining safety; reducing unnecessary regulatory burden; enhancing public confidence; and increasing our operational effectiveness, efficiency, and realism. Congressional and stakeholder interest has served to reinforce, accelerate, and expand our efforts to review and improve our regulatory programs, and to pursue further change to achieve these four performance goals.

The NRC is improving its internal efficiency and effectiveness, streamlining its operations, and consolidating its functions. We are changing our regulations to be more risk-informed. We are making improvements in the areas of power reactor license renewal, license transfers, spent fuel dry cask storage, decommissioning, uranium recovery, fuel cycle facility licensing, and medical use. We have streamlined our hearing process for reactor license renewals and license transfers, and are considering broader changes. We are consolidating and streamlining NRC organizations and operations. We also have integrated our Performance Plan and our budget, in a manner that links agency performance goals, strategies, performance measures, and resources, consistent with the Government Performance and Results Act (GPRA).

Significant Accomplishments

In testimony last year, the Commission described a broad range of proposed improvements to our regulatory programs. Examples of the substantial progress we have made since that time include the following:

- Developing a comprehensive revision to the NRC reactor assessment, inspection, and enforcement programs;
- Establishing and adhering to an aggressive schedule for processing license renewal and license transfer applications;
- Issuing guidance for streamlining NRC adjudicatory proceedings;
- Providing expanded opportunities for stakeholder participation in NRC rulemakings, policy development, and program changes;
- Approving the issuance of proposed risk-informed, performance-based regulations for medical use, fuel cycle facilities, and high-level waste disposal, and taking initial steps toward risk-informing our reactor regulations;
- Completing research to support the revision of an industry standard on reactor pressure and temperature limits, which would reduce licensee burden by expanding the operational window for plant startups and shutdowns.
- Reducing unnecessary NRC and licensee burdens associated with low-level enforcement issues;
- Determining, in a timely fashion, that the proposed privatization of the U.S. Enrichment Corporation met regulatory requirements;
- Completing the review of several dual-purpose spent fuel cask designs;
- Realigning the three major NRC program offices, achieving an overall 8:1 staff-to-manager ratio, and reducing our overall staffing and resource requirements; and
- Achieving Year 2000 readiness in NRC information systems, 54 days ahead of schedule, and overseeing the successful industry efforts to ensure Y2K readiness for all nuclear power plant systems that support safe plant operations.

Planning, Budgeting, and Performance Management Implementation

As part of our efforts to ensure the effectiveness and efficiency of agency operations, as well as our implementation of GRPA, the NRC has implemented the Planning, Budgeting, and Performance Management (PBPM) process. The result has been (1) the establishment of a sensible, reliable process for defining agency goals and establishing strategic direction; (2) cost-effective strategies for achieving those goals; (3) effective resource allocations linked directly to implementing our strategic direction; and (4) the ability to measure and assess our progress and overall performance. This system both fosters the flexibility needed to respond to emerging changes and ensures the durability of current regulatory reforms.

The NRC has continued to make significant progress in implementing the PBPM process. Revisions to the NRC Strategic Plan and the development of the integrated FY 2000 Budget/Performance Plan were the initial PBPM efforts. The integrated FY 2001 Budget Request/FY 2001 Performance Plan will reflect the continued evolution of this process. An evaluation of the NRC's PBPM process conducted by an external consultant found that the process is sound and that it has improved our integrated planning process.

We are continuing to refine the implementation of the PBPM process in order to strengthen the linkage between our performance goals, strategies, and resource requirements in developing our FY 2001 budget request. A review of the initial NRC Strategic Plan (FY 1997-FY 2002) was conducted during the Fall of 1998. As a result of that review, the agency is further refining the Strategic Plan to reflect our regulatory reform efforts. The Office of Nuclear Reactor Regulation, aided by an external consultant, initiated a systematic review of the desired outcomes and specific measurements for success. The same disciplined review has since been completed in the Office of Nuclear Regulatory Research and in the Office of Nuclear Material Safety and Safeguards (high-level waste program). These efforts have identified performance goals and strategies, and those key activities that contribute most to meeting our goals.

Progress on Streamlining the Organization

As part of our effort to be more effective and efficient and to reduce supervisory overhead, the Commission has realigned its major program offices. As an example, the Office of Nuclear Reactor Regulation (NRR) has reduced from seven divisions to five, resulting in a net reduction of 15 supervisory positions. The other major program offices have achieved similar reductions, and we have reduced overhead even further by eliminating the Office for Analysis and Evaluation of Operational Data (AEOD) and transferring its functions to other offices. In total, these and other NRC office realignments will result in the elimination of 88 managerial and supervisory positions.

The Commission has made notable progress in improving the NRC staff-to-manager ratio. When this effort was initiated in September 1993, the NRC had slightly over 700 managers and supervisors. That number has steadily declined, and the realignments described above will reduce it to about 330 by the end of FY 1999, thereby achieving our stated goal of an 8:1 staff-to-manager ratio.

We also have continued to reduce at a controlled pace the overall number of NRC employees, expressed in terms of full-time equivalent (FTE) staff years, using buyouts, early retirements, and attrition. By the end of this fiscal year, actual NRC staffing levels are projected to be approximately 2835 FTE, the lowest level in more than 20 years, down 600 FTE since 1993. The NRC FY 2000 budget request of \$471.4 million and 2810 FTE, as submitted to Congress, will allow us to continue the important regulatory changes discussed in this testimony, while continuing to ensure the fulfillment of our public health and safety mission. We will continue to look for ways to increase operational and regulatory efficiency; however, further reductions may not be possible without compromising our fundamental mission.

Legislative Proposals

The Commission has submitted a number of legislative proposals for the consideration of the 106th Congress. We are pleased to acknowledge that the Chairman of this Subcommittee, Mr. Barton, has by NRC request introduced both our reauthorization bill and our legislative proposals. We urge the approval of several amendments that could help to deter terrorist activity related to nuclear facilities and special nuclear material: (1) to authorize guards at Commission-designated facilities to carry and use firearms where needed to prevent radiological sabotage of the facility or to prevent theft of materials that could be used for nuclear explosives; (2) to make it a Federal crime to bring unauthorized dangerous weapons or explosives into NRC-licensed facilities; and (3) to clearly extend our prohibitions on sabotage to cover the construction phase of production, utilization, and waste storage facilities.

We also propose a number of amendments designed to increase Commission efficiency and flexibility: (1) allow continuation of a Commissioner's service past term expiration, under certain circumstances, to maintain a Commission quorum and to offset delays in the confirmation process; (2) provide flexibility on hearings associated with Commission licensing of uranium enrichment facilities; (3) make explicit that the duration of a combined construction and operating license would allow up to 40 years of operation; and (4) eliminate the requirement for the NRC to maintain an office in the District of Columbia. Two proposed amendments are designed to eliminate duplicative regulatory roles: (1) eliminating NRC antitrust reviews; and (2) establishing NRC and Agreement State jurisdiction over radiological cleanup criteria for facilities licensed by them. The last two amendments would relax unnecessary or outdated provisions: (1) eliminating prohibitions on foreign ownership of power and research reactors; and (2) providing general gift acceptance authority commensurate with the provisions of other agencies.

FY 2000 AUTHORIZATION REQUEST HIGHLIGHTS

On May 4, 1999, the NRC submitted proposed legislation which would authorize appropriations for FY 2000. The proposed legislation would authorize an FY 2000 NRC budget of \$471,400,000, including \$465,400,000 for Salaries and Expenses Appropriation, and \$6,000,000 for the Inspector General Appropriation. The NRC continues to recognize the high priority on reducing Federal spending emphasized by the Administration and the Congress. This budget, when adjusted for inflation, represents the lowest budget in the history of the NRC—a 25 percent reduction over the past seven years. In spite of the constrained fiscal environment, this budget fully supports the NRC ability to fulfill our fundamental health and safety mission, while continuing the most comprehensive reform effort in the history of the agency. Again, however, we urge caution in contemplating further reductions. A budget summary is located in Appendix (1).

The resources for the *Nuclear Reactor Safety Arena* support a comprehensive oversight program, including reactor inspection and reactor licensing activities for 103 operating reactors and a safety research program. The reactor oversight program will continue to bear a strong relationship to facility performance. However, we expect that these programs will change as a result of our on-going reevaluation of the reactor regulatory program. In anticipation of these changes, a reduction in event assessment/incident response activities has been included in the budget estimates. In addition, the budget estimates reflect anticipated reductions in reactor inspection activities due to continued improved plant safety performance and expected efficiencies to be gained from improvements in the inspection process. The budget includes funding for the review of two new reactor license renewal applications in FY 2000.

The *Nuclear Materials Safety Arena* supports an increase primarily from costs associated with making our materials, fuel cycle, and waste regulations more risk-informed and, where appropriate, performance-based; development and implementation of the new NRC registration program for certain industrial devices; initiation of research into the development and demonstration of risk assessment methods for dry cask storage; and enhanced efforts to develop the technical basis for performance criteria of dry storage casks under seismic loading conditions. The increase is partially offset by reductions associated with Ohio becoming an Agreement State.

The *Nuclear Waste Safety Arena* supports an increase primarily in the NRC high-level waste repository program activities, and ongoing decommissioning activities to work off the licensing backlog, to complete the Standard Review Plan for decommissioning, and to support an increased level of rulemaking activity. The increase is partially offset by a reduction in the number of inspections needed at uranium recovery facilities.

The *International Nuclear Safety Support Arena* reflects a change in how program funding is obtained. For FY 1999, the NRC renegotiated its reimbursable agreements with the Agency for International Development (AID) to recover NRC FTE costs for providing nuclear safety assistance to the countries of the Former Soviet Union (FSU). In FY 2000, the NRC will include the AID-related FTE costs for support of FSU and Central and Eastern European countries within the general fund portion of the requested appropriation.

The *Management and Support Arena* supports a decrease primarily based on agency-wide program reductions and efficiencies. Funding also decreases in information technology and management, as investments in the design and start-up of the Agency-Wide Document Access and Management System (ADAMS) are completed and the agency moves to a new integrated financial and resource management system (STARFIRE).

User Fees

The Omnibus Budget Reconciliation Act of 1990 currently requires the NRC to collect approximately 100 percent of its budget (less the appropriations from the Nuclear Waste Fund) from user fees. This requirement expires at the end of FY 1999 and reverts to 33 percent. The NRC's authorization bill, which is consistent with the President's budget, includes a legislative proposal to extend the requirement for 100 percent fee recovery through FY 2004. The Commission continues to be sensitive to the fairness and equity concerns that 100 percent fee recovery entails for our licensees. Our authorization bill also will permit the NRC to charge other Federal agencies Part 170 inspection and licensing fees, thereby helping to mitigate, to a very small degree, some of the fairness and equity concerns expressed by the NRC, the Congress, and NRC licensees.

The discussions that follow provide the Subcommittee with further details of NRC's program activities and a description of our legislative recommendations.

SUMMARY OF PROGRAM ACTIVITIES BY ARENA

NUCLEAR REACTOR SAFETY

In the nuclear reactor arena, maintaining the safety of 103 operating nuclear power reactors remains our highest priority. In this context, the Commission intends to reinforce, accelerate, and expand efforts to improve NRC efficiency and effectiveness, to streamline our operations, and to consolidate our functions where appropriate. We are committed to making these improvements without compromising our mission of protecting public health and safety and the environment. We also are committed to the goal of using risk information and risk analysis as part of a policy framework that applies to all phases of our nuclear regulatory oversight, including licensing, inspection, assessment, enforcement, and rulemaking.

Risk-Informed, Performance-Based Regulation

The Commission is making substantial modifications to the NRC regulatory approach to become more risk-informed and, where appropriate, performance-based; to enhance our safety focus; to eliminate unnecessary regulatory burden; to improve the effectiveness, efficiency, predictability, and transparency of our processes; and to maintain public confidence in what we do. Recent accomplishments include increasing stakeholder involvement, refining NRC internal practices, completing NRC pilot programs, and laying the foundation for risk-informing NRC reactor regulations over the longer term.

Reactor Performance Assessment, Inspection, and Enforcement (The Oversight Process)

As previously stated, the Commission is taking a more risk-informed and, where appropriate, performance-based approach in the oversight of nuclear reactors. We have made considerable progress in identifying necessary changes to the assessment, inspection, and enforcement processes to improve their objectivity; to make them more understandable, predictable, and risk-informed; and to focus on aspects of performance that have the greatest impact on safe plant operation. These efforts have been guided, in part, by four performance goals, as previously stated, used as "filters" to evaluate, prioritize, and sunset activities. Each activity is examined to see how it: (1) maintains public safety; (2) eliminates unnecessary NRC and licensee burden; (3) enhances public confidence; and (4) makes NRC activities more effective, efficient, and realistic.

The NRC staff has proposed to the Commission a new power reactor assessment framework, which builds upon the cornerstones of licensee performance that must be monitored to ensure that nuclear power reactor operations do not pose unacceptable risks to the public. The cornerstones support the NRC mission by ensuring that: (1) initiating events are reduced; (2) mitigation systems are available, reliable, and capable of performing their intended functions; (3) barriers are sufficient to limit the release of radioactivity; (4) adequate emergency preparedness functions are maintained; (5) licensees have implemented adequate programs to protect the public and workers from radiation; and (6) security measures are in place to protect against radiological sabotage. As part of the assessment framework, the NRC staff has identified performance indicators, performance indicator thresholds, and risk-informed inspections that would supplement and verify the validity of the performance indicator data.

This assessment framework provides a natural basis for a risk-informed baseline inspection program, one that identifies the minimum level of inspection required, regardless of licensee performance, to ensure adequate NRC oversight and independent assessment of licensee performance. Developed using a risk-informed ap-

proach, the proposed baseline inspection program includes a comprehensive list of inspectable areas within each cornerstone of the assessment framework. The Commission also has developed an interim Enforcement Policy that is integrated with the risk-informed inspection and assessment processes.

The new reactor oversight process will integrate assessment of the performance indicators with the results of the risk-informed baseline inspections. This integration will allow the NRC to make objective, predictable, and timely conclusions regarding licensee safety performance, and to communicate these results effectively to the licensees and to the public. The process includes specific thresholds—tied to the cornerstones of safety—that will trigger commensurate licensee and/or NRC action if they are exceeded.

We have made considerable progress in reshaping these NRC regulatory programs. Pilot inspections were begun in June 1999. Our intent is to make major process changes incrementally, to allow testing and adjustment during piloting and implementation. Much of the work that remains in FY 1999 and FY 2000 relates to bench-marking, conducting pilots, developing procedures, and training the NRC staff in the new processes.

Enforcement Program Changes

In parallel with these long-term improvements to the oversight process, the NRC has made several short-term changes to its enforcement program to reduce unnecessary NRC and licensee burden. On July 27, 1998, we issued enforcement guidance to clarify our existing Enforcement Policy. The changes ensure that: (1) licensees are given appropriate credit for identifying and correcting violations; (2) NRC and licensee resources are not expended on violations that do not warrant formal citations; (3) written responses to Notices of Violation are not required when necessary information already is docketed elsewhere; and (4) cases involving multiple examples of the same violation are treated consistently. The agency-wide implementation of this guidance has resulted in a significant reduction in the number of low-level (Severity Level IV) violations, which otherwise would absorb NRC and licensee resources in amounts disproportionate to the safety significance of the violations.

On January 22, 1999, the Commission approved a change to the Enforcement Policy that will expand the use of non-cited violations. The change was published in the Federal Register February 9, 1999, and became effective March 11, 1999. Except in limited circumstances, individual Severity Level IV violations now will not be cited, so long as they have been entered into the licensee corrective action program. Accordingly, the NRC inspection program will place more emphasis on assessing the effectiveness of licensee corrective action programs. This is consistent with the thrust of the risk-informed inspection process described earlier. In addition, in June 1999, the Commission approved changes to the Enforcement Policy that will address the use of risk considerations in enforcement decisions and eliminate the use of “regulatory significance,” which was not well-defined as an escalating factor for certain enforcement actions.

Reactor Licensing

By better focusing resources and improving internal procedures, the NRC has greatly reduced its licensing action backlog in FY 1999, and expects to eliminate this backlog completely in FY 2000. We are working with our stakeholders to improve the license amendment review process and shorten the review time. We have also initiated improvements to our 10 CFR 2.206 process for allowing the public to petition the NRC to take certain actions at licensed facilities.

As part of our commitment to risk-informed regulation, we have changed internal NRC operating practices. This has included providing additional guidance, training, and management attention to ensure that risk-informed licensing actions are given the appropriate priority. The completion of numerous plant-specific risk-informed licensing reviews in FY 1999 has helped to sharpen the focus on safety while reducing unnecessary regulatory burden. We also have worked to improve and clarify our requirements and guidance for facility changes, as well as our guidance for maintaining updates to plant final safety analysis reports (FSARs), which are used as reference documents for safety analyses. The Commission considers the progress made to date in these areas a significant regulatory success, because the NRC and many of its stakeholders worked closely in developing processes that both maintain safety and eliminate unnecessary NRC and licensee burden.

The NRC has improved the timeliness of reviews for converting power reactor licenses to improved standard technical specifications. This conversion improves consistency in interpreting and applying these requirements. In total, licensees for approximately 89 reactors have decided to convert to the new technical specifications, which licensees have projected will save from \$150,000 to over \$1,000,000 annually

per site. To date, applications to convert have been received from 58 units, of which 49 units have been given approval, 23 since July 1998, which has eliminated the large backlog of applications under review over the last two years. We expect to issue approvals for an additional 4 units during the remainder of FY 1999. Work on applications will continue through FY 2000.

Reactor License Renewal

Establishing a stable, predictable, and timely license renewal process is a top NRC priority. The Commission has issued a policy statement laying out its expectations for a focused review of license renewal applications, built upon our license renewal regulations. To date, all milestones for the license renewal reviews have been met. Using case-specific orders, the Commission has established an aggressive but reasonable adjudicatory schedule for reviewing the Calvert Cliffs and Oconee applications. Revised goals are to complete the license renewal process in 30 months. We also have prepared procedures to control the reviews and to resolve generic renewal issues. NRC management meets monthly with the applicants to monitor progress and the resources expended, and to resolve renewal issues.

We also understand that we will receive the next license renewal application in December 1999 from Entergy for their Arkansas Nuclear One plant. Other applications from the Hatch and Turkey Point plants are expected in 2000, and we have asked for sufficient resources in our FY 2000 budget to handle the anticipated new applications. Lessons learned from the initial reviews may help to streamline later reviews even further.

License Transfers and Adjudicatory Processes

The Commission has issued a final rule to establish an informal streamlined hearing process for license transfers. Under this newly-adopted rule (Subpart M to 10 CFR Part 2), the Commission expects to complete informal hearings and issue final decisions on most license transfer applications within about 6-8 months of when the application is filed.

The NRC has completed final Standard Review Plans (SRPs) for antitrust and financial qualifications reviews, and a draft SRP for foreign ownership issues. A final SRP for foreign ownership issues is currently being considered by the Commission. SRPs document the process and criteria to be used by the NRC staff in performing its reviews, which improves the focus, effectiveness, predictability, timeliness, and efficiency of the process. In April 1999, the NRC completed its review and approval of the license transfer requests for Three Mile Island Unit 1 and the Pilgrim station.

The Commission currently is developing a proposed rule that would provide a more comprehensive streamlining of its adjudicatory processes. Concurrently, the Commission has been monitoring closely its adjudicatory tribunals to ensure appropriate adherence to the substantive and schedular provisions of the Commission Rules of Practice.

Reactor Safety Research

The NRC research program continues to contribute in a significant way to our success in achieving performance goals in the reactor arena. Research efforts are underway to resolve important safety issues such as the operation of air-operated valves, which could result in a safety problem if key valves failed when called upon to perform a safety function. The program also facilitates NRC support for industry initiatives and contributes to the reduction of unnecessary burden. For example, working cooperatively with the American Society of Mechanical Engineers (ASME), NRC-sponsored research established the technical bases for changing the basic fracture toughness curves for determining nuclear plant pressure and temperature limits. This provided a significant burden reduction for the majority of operating plants.

In addition, current research is re-evaluating pressurized thermal shock for reactor pressure vessels (RPVs). Work in this area has shown significant potential for reduction of unnecessary burden through technical advancements in materials assessment, fracture mechanics, and non-destructive evaluation. The research program also is enhancing our understanding of new nuclear technologies, such as proposals to increase fuel burn-up without increasing the risk to the public health and safety. We are working to consolidate the several computer programs now used for thermal-hydraulic and severe accident analysis. Our research also is supporting the framework for moving to a more risk-informed and, where appropriate, performance-based regulatory approach through pioneering work in probabilistic risk assessment. Building on a long history of advancing PRA technology and recent successes such as risk-informing reactor piping inspection processes, we are focusing our research efforts on providing the technical bases for risk-informing NRC's reactor regulations.

Other Significant Reactor Rulemakings

The Commission also has underway other significant rulemakings affecting reactor licensees. The first is a revision to Appendix K of 10 CFR Part 50, which recognizes the ability of new flowmeter technologies to more accurately measure water flow rates. We have informed OMB that this rule will likely constitute a major rule because it will provide more than \$100 million in annual benefits to our licensees, by allowing them to increase their electrical generating capacity by one percent. This is an example of NRC recognizing the advantage of updated technology.

The second rulemaking is a revision to Part 50 to allow reactor licensees to use revised source terms in design basis accident radiological analyses. This rule is also expected to reduce unnecessary regulatory burden, reduce worker radiation exposure, and improve overall safety. It is the result of extensive NRC research and analysis over the past twenty years, which has led to a much better understanding of accident source terms.

NUCLEAR MATERIALS SAFETY

In a manner similar to initiatives evolving in the reactor safety arena, we are enhancing our regulatory programs for nuclear materials safety. The NRC and Agreement States regulate more than 23,000 specific users of radioactive materials in medical, academic, industrial, and commercial applications, in addition to more than 100,000 general licensees. Thirty States currently are Agreement States. Ohio is likely to become an Agreement State later this year, with Oklahoma and Pennsylvania expected to become Agreement States in FY 2000, Minnesota in FY 2002, and Wisconsin in FY 2003. Our testimony highlights some of the many and diverse program improvements underway in the nuclear materials arena.

Medical Regulation

The NRC staff is reviewing public comments on our proposed revisions to the medical use regulations in 10 CFR Part 35. The revision of Part 35 will achieve several specific improvements in the medical use regulatory program. These improvements would make the rule more performance-based and would focus the regulations on medical procedures that pose the highest risk, from a radiation safety aspect, with a corresponding decrease in the oversight and regulatory burden for lower risk activities. The proposed revision of the Medical Policy Statement and a proposed revision to Part 35 were published in the *Federal Register* for public comment on August 13, 1998, and we have had the benefit of many stakeholder interactions since that time. The Commission will be reviewing a final draft rule this summer, and we expect to complete this rulemaking in early 2000.

The revisions to Part 35 are being developed using an enhanced participatory process, which is intended to develop a final rule that will be accepted broadly, and includes participation by several medical professional organizations, the Organization of Agreement States, the Conference of Radiation Control Program Directors, the NRC Advisory Committee on the Medical Use of Isotopes, and other stakeholders. We have solicited early public input through *Federal Register* notices, public meetings with medical professional societies and boards, open meetings of the groups developing the revised policy statement and rule language, public workshops, and Internet postings of relevant background documents.

Spent Fuel Storage

The NRC has made significant progress in its review of dual-purpose cask systems for spent fuel storage and transportation. By December 2000, we anticipate that all six of the dual purpose cask system reviews in process and two of the transportation reviews should be completed.

The NRC issued a license to the DOE for the TMI-2 fuel debris storage facility at the DOE Idaho Operations Office (DOE-ID) in March 1999. That same month, we issued a license to Portland General Electric (Trojan) for an independent spent fuel storage facility, and we expect to issue another to Rancho Seco prior to the end of 1999. We transferred the Fort St. Vrain independent spent fuel storage installation license to the DOE-ID in June 1999. We will continue to maintain an aggressive licensing review schedule for the proposed Private Fuel Storage facility located on the Skull Valley Band of Goshute Indian Reservation in Utah. We also are continuing to work with the DOE on projects involving spent fuel storage and management.

As in other arenas, we have worked to make our spent fuel storage oversight more effective and timely while ensuring safety. We have initiated process changes to enhance and focus technical reviews, to develop guidance for those reviews, to reduce the time-frame for storage cask certification rulemakings, to enhance our reviews

based on lessons learned, to ensure consistency in licensee change processes, and to improve communication with internal and external stakeholders.

Mixed Oxide Fuel (MOX)

In accordance with the regulatory oversight responsibility for mixed oxide (MOX) fuel assigned to the NRC in the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (Public Law 105-261), the Commission has initiated preparatory activities for the licensing of a MOX fuel fabrication facility and subsequent irradiation of the fuel in commercial reactors.

The Commission notes that the NRC FY 2000 budget request did not include resources to conduct work related to the DOE MOX fuel program because, at that time, the NRC had planned to continue to carry out such work through its reimbursable agreement with the DOE. However, because Public Law 105-261 subsequently gave NRC the authority to license a MOX facility, this work is now a part of the NRC mission. As a result, the NRC must use its appropriated funds to carry out this effort, and will not continue its reimbursable agreement with the DOE. We are making changes to our budget to accommodate this new responsibility.

These appropriated resources will be used to meet with the MOX applicant and to review topical programs related to the license application for the fuel fabrication facility, such as safeguards, criticality safety, radiation protection, and quality assurance, as well as early issues related to environmental review and the use of MOX fuel in commercial power reactors. A license application is anticipated in November 2000, and, given current projections for the licensing review (including the completion of an environmental impact analysis), we would expect final licensing to occur in FY 2003. We also have determined those aspects of MOX fuel irradiation that necessitate beginning research in FY 2000 to support the licensing action.

External Regulation of the Department of Energy (DOE)

The Commission recognizes the position of the Secretary of Energy in his recent letter to Congress, withdrawing support for external regulation of DOE facilities by the NRC. However, based on the preliminary results of the pilot projects and our observations to date, the Commission continues to believe that the NRC could regulate substantial portions of DOE in a manner that would be cost-effective and relatively straightforward, and that would accomplish the objectives of external regulation. The cost to the DOE could be minimized—and could even result in a net savings—by reducing the level of DOE oversight to a level consistent with a corporate oversight model. The NRC had substantial technical and policy differences with the views presented by the DOE in its March 31, 1999 report to Congress on the results of the pilot program. Consequently, we did not concur in this report, and instead have recently issued an independent report to Congress and other stakeholders.

Research Contributions

Research is contributing significantly to performance goals in the nuclear material safety arena. For example, research provides the technical basis to address licensing questions related to the structural integrity of dry cask storage systems. Research also is being conducted to provide the technical basis to grant credit for fuel burn-up in the licensing of spent fuel transportation casks.

Hanford Tank Waste Remediation System Program

The NRC continues to assist the DOE in its River Protection Project—Privatization (formerly known as the Hanford Tank Waste Remediation System (TWRS) program). In conjunction with this effort, we have recruited highly competent staff with waste solidification and vitrification expertise and experience; gained extensive understanding of the DOE plans for removal and vitrification of the radioactive and highly toxic wastes from the underground storage tanks; and developed a licensing Standard Review Plan and regulatory basis for the possible future NRC licensing of the DOE Hanford vitrification facility. However, the Department of Energy has made significant changes in its approach to this project in the past year, which in turn have significant implications for the timing of any NRC licensing of any phase of this project. The Commission recently directed the staff to consult with the appropriate Congressional committees, including of course this committee, on how and whether to continue NRC's involvement in light of the DOE changes.

NUCLEAR WASTE SAFETY

The NRC has launched similar initiatives to improve the effectiveness and efficiency of our regulatory programs in the nuclear waste safety arena. The NRC continues to progress in its reviews and pre-licensing consultation under existing law related to the DOE program to develop a high-level radioactive waste repository.

The Commission firmly believes that a permanent geologic repository is the appropriate mechanism for the nation ultimately to manage spent fuel and other high-level radioactive waste (HLW). In accordance with the statutory direction in the Nuclear Waste Policy Act and the Energy Policy Act of 1992, the NRC, before licensing a repository, must consult extensively with the DOE to develop a regulatory framework. Further, if the DOE recommends a site for a repository, the NRC must evaluate the adequacy of the DOE site characterization and waste form proposal. Ultimately, if the DOE submits a license application for a repository, the NRC must determine whether it can authorize repository construction, receipt of waste, and final repository closure. The NRC is also making significant progress in its programs for nuclear facility decommissioning, uranium recovery, and low-level waste management.

High-Level Waste—Yucca Mountain Status and Key Issues

In FY 2000, the NRC expects to finalize a performance-based regulatory framework by issuing 10 CFR Part 63. As called for by the Energy Policy Act of 1992, Part 63 would implement health-based standards that would apply solely to the proposed Yucca Mountain repository. The proposed Part 63, which we published for public comment on February 22, 1999, establishes licensing criteria to evaluate the performance of the repository system at Yucca Mountain, Nevada. Over the course of the public comment period (which was extended in response to stakeholder requests), we have conducted five public meetings in Nevada on the proposed technical criteria.

In parallel with the development of Part 63, the NRC continues to develop a Yucca Mountain review plan and to resolve key technical issues to prepare for reviewing the DOE license application expected in 2002. These activities aid in the ongoing review of the DOE draft license application and provide guidance to the DOE on what is needed for a complete and high quality application. To that end, we will continue to evaluate the implementation of the DOE quality assurance program. We expect to complete our review of the DOE draft Environmental Impact Statement (EIS) for the Yucca Mountain site in FY 2000. The NRC staff has prepared a plan for EIS review that will include the consideration of public concerns in the preparation of NRC comments.

Decommissioning Program

Decommissioning involves removing radioactive contamination in buildings, equipment, groundwater, and soils to such levels that a facility can be released for either unrestricted or restricted use. The NRC is continuing to encourage timely cleanup of approximately 40 material and fuel cycle facility sites through the implementation of its Site Decommissioning Management Plan (SDMP). The NRC expects to remove at least three sites from the SDMP list in FY 1999 and FY 2000. The NRC also will continue to oversee the decommissioning of 19 commercial power reactors and hundreds of other licensed facilities. The NRC monitors licensee actions to store or dismantle and decontaminate the facilities in a safe manner while maintaining the licensed configuration of the facility and managing the use of decommissioning funds as described in the regulations. The NRC will continue to enhance the decommissioning program to add stability, predictability, and efficiency to the process by incorporating additional experience into rules and guidance documents.

In FY 1999, the NRC initiated the consideration of a rulemaking to establish criteria for release of solid materials with low levels of radioactive contamination, in order to establish a regulatory framework more consistent with existing requirements for air and liquid releases. The process will include facilitated public meetings to obtain early stakeholder input on major issues associated with such a rulemaking, including conducting a scoping process related to the scope of environmental impacts. In addition, last month we published an issues paper in the Federal Register for public review, to provide background information in preparation for public workshops in the Fall of 1999 and analysis of stakeholder views in FY 2000. In parallel with these activities, we will continue to develop the technical basis, draft environmental impact statement, draft regulatory analysis, and draft regulatory guidance needed to accompany any proposed action.

In FY 2000, the NRC will finalize decommissioning guidance to provide an overall framework for dose assessment and decision-making at sites undergoing decommissioning. We will continue development of a Standard Review Plan for decommissioning materials sites and power reactor license termination plans, to facilitate the NRC staff review of licensee submittals in a manner that is timely, efficient, consistent, and ensures the protection of public health and safety. In addition, we will continue a pilot study during FY 2000 involving five materials sites. Based on this

experience, recommendations will be made to streamline the decommissioning submittal and review process for materials sites.

INTERNATIONAL NUCLEAR SAFETY SUPPORT

The NRC carries out a low-cost but high-impact program of international nuclear safety activities that supports United States domestic and foreign policy interests in the safe, secure, and environmentally acceptable use of nuclear materials, energy, and in nuclear non-proliferation. This program ensures, through active participation in mutually beneficial bilateral and other international efforts, that the NRC supports the U.S. policy of strengthening nuclear regulatory regimes abroad and fostering a global nuclear safety culture, as well as ensuring the security of strategic special nuclear material.

The public and NRC licensees derive tangible and intangible benefits from these international activities. Public confidence in nuclear energy as a technology is strongly impacted by the public perception of how safely nuclear operations are conducted—whether domestically or abroad. In addition, as a major supplier of nuclear fuel, equipment, and technical services, the United States depends on an orderly and predictable export licensing regime to maintain marketability. NRC assistance also helps in the prevention or mitigation of problems in countries with weak or embryonic nuclear safety and nuclear regulatory cultures. NRC participation in international safeguards and non-proliferation activities directly supports the assessment of potential threats against the U.S.

Cooperation with foreign countries in the area of nuclear safety provides a considerably larger operational experience base than exists in the United States alone. As one aspect of this cooperation, the NRC maintains extensive research agreements with organizations in many foreign countries. This cooperative approach helps to leverage our research resources, and recognizes the inherently international character of the nuclear business. The resultant resolution of safety issues leads to benefits for the U.S. nuclear power industry and, more importantly, aids considerably in the prevention of nuclear accidents in countries with weak or embryonic nuclear safety cultures.

Export Licensing and Non-Proliferation Activities

The NRC reviews and takes action on approximately 75 to 100 import and export license applications per year. In addition, the NRC actively participates in international export control through groups such as the Nuclear Suppliers Group and the Zangger Committee, to ensure that export policies are consistent among nuclear supplier states. The NRC also helps the U.S. to meet its obligations under Article IV of the Nuclear Non-Proliferation Treaty, including support for bilateral and International Atomic Energy Agency (IAEA) sponsored exchanges of equipment, materials, and scientific and technological information on the peaceful uses of nuclear energy. Within the limits of available resources, the NRC also provides technical assistance to U.S. policy makers in connection with (1) the U.S.-Russia agreement to make permanent the cessation of plutonium production for nuclear weapons; (2) the U.S.-Russia-IAEA Trilateral Verification Initiative on excess weapons material; (3) the process of making decisions on how to dispose of excess plutonium; and (4) the Fissile Material Cut-Off Treaty. Finally, the NRC is working closely with the Executive Branch to facilitate the effective implementation of the Strengthened Safeguards System of the IAEA.

Bilateral and Multilateral Activities

Since the demise of the Soviet Union, particular emphasis has been placed by the United States and the international community on addressing both nuclear safety and nuclear materials safeguards concerns in the countries of the former Soviet Union (FSU) and in central and eastern European countries (CEE). The NRC strongly supports these efforts, and has focused its role primarily on strengthening the nuclear regulatory authorities of these countries. We conduct programs (funded primarily through the U.S. Agency for International Development (AID), DOD, and DOE) to train regulators from FSU and CEE countries on the creation and/or strengthening of their regulatory capabilities. We continue to see positive results from our assistance efforts with the Russian, Ukrainian, Kazakh, Armenian, Czech, Slovak, Lithuanian, Bulgarian, and Hungarian regulators. Much of this success can be attributed to their own willingness and desire to enhance their nuclear safety and regulatory infrastructure, and their growing expertise in the application of Western safety and safeguards review tools.

Vice-Presidential Commissions

Two examples of high-level Commission opportunities to focus on nuclear safety with top U.S. and foreign government officials are the U.S.-Russian Joint Commission on Economic and Technological Cooperation, chaired by the U.S. Vice President and the Russian Prime Minister, and the U.S.-South African Binational Commission (BNC), chaired by the Vice President and the South African Deputy President. Both commissions have achieved measurable results in enhancing nuclear safety, and we look forward to continued cooperative efforts in this area.

International Safety Conventions

The NRC has worked extensively in the development of the Convention on Nuclear Safety (CNS)—the first instrument to address directly the safety of nuclear power plants worldwide. This Convention obliges contracting parties to establish and maintain proper legislative and regulatory frameworks to govern safety. On April 11, 1999, the United States became a party to the Convention, and participated in the final plenary of the first Review Meeting in April 1999. The U.S. also deposited its National Report, which had been prepared by the NRC. We anticipate fully participating in all aspects of the Convention's preparatory, organizational and review meetings in the future.

International conventions on waste management and liability also have been negotiated, as integral parts of U.S. efforts to enhance global nuclear safety. These conventions are undergoing Executive Branch review and likely will be forwarded by the President to the Senate for its advice and consent to ratification in calendar year 1999.

MANAGEMENT AND SUPPORT ARENA

As stated earlier, our FY 2000 budget request supports a decrease in the area of management and support, primarily based on agency-wide program reductions and efficiencies, with additional decreases due to the completion of milestones in information technology and management. A particular area of emphasis, which I will cover in more detail, is our effort to resolve Year 2000 computer issues.

Year 2000 Implementation

All 88 of our internal mission-critical, business-essential and non-critical systems have been examined and, as needed, fixed with regard to the Year 2000 (Y2K) problem. This work was accomplished almost two months ahead of the OMB-established milestone, and well under budget.

The one NRC mission-critical system that is directly linked to operating nuclear power plants is our Emergency Response Data System (ERDS). This application performs the communication and data transmission functions that provide near real-time data to NRC incident response personnel during declared emergencies. We have verified that this system has been made Y2K compliant and that the interface of the system with licensed facilities is functional.

Externally, the NRC is working with nuclear power plants and our other licensees to ensure Y2K readiness for those systems needed to operate and shut down plants safely, recognizing the importance of ensuring electrical grid reliability and the safety and security of radioactive materials. Based on the results of our audits, we have concluded that licensee management oversight of the Y2K readiness programs generally has been aggressive and is contributing to the success of nuclear facility Y2K readiness efforts. Nonetheless, NRC inspectors assigned to power reactor sites have reviewed licensees Y2K programs to ensure that all facilities are taking appropriate actions. Based on our reviews, we believe that our licensees are devoting the necessary resources to their programs to meet their readiness schedules.

In July 1999, the NRC received reports from all 103 operating nuclear power plants indicating that there are no Y2K-related problems that directly affect the performance of safety systems. Sixty-eight of these plants indicated that all of their computer systems are "Y2K ready." The remaining 35 plants reported that they have additional work to complete on a few non-safety computer systems or devices to be fully Y2K ready, and provided their schedules for completing this work. Of the 35 plants, about one-third have remaining work involving systems needed for power generation. Other plants have work that deals with plant monitoring and administrative systems. I would emphasize that none of the remaining work affects the ability of the plants to shut down safely, if needed. Typically, the remaining Y2K work to be completed after July 1 of this year is dependent on a scheduled plant outage this fall, or the delivery of a replacement component.

The NRC will continue to monitor the progress at those plants that have remaining items of work, and will independently verify completion of these items, including Y2K contingency plans—procedures for dealing with unexpected events. All licens-

ees are expected to be Y2K ready and to have contingency plans in place before December 31. If, by the end of September, we believe that any needed Y2K readiness activities will not be completed in advance of the December 31 to January 1 transition, we will take appropriate action, including the issuance of shutdown orders, if necessary.

LEGISLATIVE PROPOSALS TO THE 106TH CONGRESS

The Commission has submitted a number of legislative proposals for the consideration of the 106th Congress. We are pleased to acknowledge that the Chairman of this Subcommittee, Mr. Barton, has by NRC request introduced both our reauthorization bill and our legislative proposals. These proposals are designed to improve our safeguards provisions, to increase our efficiency and flexibility, to eliminate duplicative regulatory roles, and to relax unnecessary or outdated provisions. Each of the individual proposals is discussed below.

Improvements to NRC Safeguards Provisions

Carrying of Firearms by Licensee Employees: This amendment would authorize guards to carry firearms at Commission-designated facilities owned or operated by a Commission licensee or certificate holder, at any NRC-licensed or certified facility where there are special nuclear materials present, and while engaged in transporting special nuclear materials. The guards would be authorized to use the weapons, in circumstances defined by Commission regulations and guidelines, where necessary to prevent sabotage of a facility designated by the Commission or to prevent theft of materials capable of being used for nuclear explosives. The purpose of the amendment is to help mitigate licensee guards' reluctance to use their weapons in defending such facilities and transports against attack because of fear of prosecution under State laws that provide that weapons may be used only to protect the user's own life or the life of another. The amendment could provide the possibility of shielding the guards against prosecution by state authorities for discharge of firearms in the performance of official duties. The authority that would be provided by this amendment already exists with respect to guards at Department of Energy facilities and DOE guards transporting special nuclear materials.

Unauthorized Introduction of Dangerous Weapons: This amendment would allow the Commission to issue regulations that would, in effect, make it a Federal crime for an individual who has not received prior authorization to bring any dangerous weapon, explosive, or other dangerous instrument likely to produce substantial injury or damage into facilities subject to NRC licensing authority. Currently, the NRC may impose sanctions against the licensee, but no Federal law permits imposing criminal sanctions against the individual responsible for bringing the weapon or other dangerous instrument on site. Enactment of this amendment would assist NRC licensees in their efforts to safeguard licensed nuclear facilities and materials against nuclear theft or radiological sabotage.

Sabotage of Production, Utilization, Uranium Enrichment, Fuel Fabrication, or Waste Facilities: Section 236 of the Atomic Energy Act currently addresses sabotage or attempted sabotage of production, utilization, and waste storage facilities. However, it can be argued that this provision is not applicable during the construction phase of such facilities. Past events have indicated that sabotage can occur during the construction phase that is not discovered until the operational phase, and thereby has the potential to impact public health and safety. This amendment would make it a Federal crime to sabotage such facilities during the construction phase, if the sabotaging action could jeopardize public health and safety. In addition, this amendment would extend these sabotage provisions—for all phases—to other types of facilities, including (1) waste treatment facilities, (2) waste disposal facilities, and (3) uranium enrichment and nuclear fuel fabrication facilities licensed or certified by the NRC. Enacting criminal sanctions to help deter sabotage and increasing the range of facilities covered will provide further protection of the public health and safety.

Increased Efficiency and Flexibility

Continuation of Commissioner Service: This amendment would allow a Commissioner whose term has expired to continue in office (subject to the removal power of the President) until whichever of the following occurs first: (1) his or her successor is sworn in, or (2) the expiration of the next session in Congress after the expiration of the Commissioner's fixed term of office. Enactment of this amendment would, in most circumstances, allow the Commission to maintain a quorum of at least three individuals, even when the terms of several successive Commissioners have expired without their reappointment, thus avoiding the potential disruption of agency business due to the loss of a quorum. It would also be helpful for cases in

which a Commissioner is renominated, but with insufficient time for the Senate to act before the expiration of the prior term. Such a holdover provision would enable the Commission to operate in accordance with the intent expressed by the Congress in the Energy Reorganization Act of 1974, that the NRC should have a 5-member Commission. Holdover provisions are found in the organizational statutes of the majority of independent regulatory agencies.

Hearings on Licensing Uranium Enrichment Facilities: This amendment would improve the hearing process associated with NRC licensing of uranium enrichment facilities by eliminating the requirement for such a hearing to be "on the record." Hearings that are required to be "on the record" must conform to the more elaborate formalities prescribed by the Administrative Procedure Act. Such hearings, if not appropriately disciplined, can be inefficient, protracted, and costly. This amendment would not eliminate the possibility that the Commission might determine that a formal hearing is appropriate for the licensing of uranium enrichment facilities, but it would give the Commission the flexibility to determine which type of hearing is most suitable.

Duration of Combined Construction and Operating Licenses: The Commission is seeking a technical correction that would make the duration of a combined construction and operating license consistent with the duration of a license for an initial operating license under the circumstances where the construction and operating phases are licensed separately. The Atomic Energy Act authorizes the NRC to specify a duration of up to 40 years for any commercial license it issues, including an initial operating license for a nuclear power plant. The Energy Policy Act of 1992 amended the Atomic Energy Act to make explicit that the NRC can issue a combined license for construction and operation of a nuclear power plant. However, the Energy Policy Act did not make explicit that the duration of a combined license should allow for up to 40 years of operation. In the absence of such an explicit provision, it might be argued that the period of operation under a combined license is limited to 40 years from the time authorization is given to construct the plant. There is no safety reason for such a limit.

Office Location: This amendment would change the requirement that the NRC maintain an office for the services of process and papers with the District of Columbia (DC). The Atomic Energy Act requirement that the NRC maintain such an office was enacted before the Commission consolidated the agency in Rockville, Maryland, and there is no longer a sound reason for maintaining the DC office. The elimination of the requirement could result in a monetary savings for the agency because it would eliminate the need to maintain a DC address for hand or mail delivery of documents. Commission efficiency could be enhanced if this statutory requirement were eliminated.

Elimination of Duplicative Regulatory Roles

Elimination of NRC Antitrust Reviews: This amendment would eliminate the Commission's antitrust review authority with respect to pending or future applications for a license to construct or operate a utilization or production facility. At the time of enactment of the Atomic Energy Act provisions requiring NRC antitrust reviews in connection with application for a Commission license to construct or operate a commercial utilization or production facility, the NRC appeared to be in a unique position to ensure that the licensed activities of nuclear utilities would not create a situation inconsistent with the nation's antitrust laws. Today, however, the NRC's antitrust reviews unnecessarily duplicate other agencies' efforts, particularly those of the Department of Justice and the Federal Energy Regulatory Commission. The amendment would preserve the Commission's authority to enforce antitrust conditions in licenses issued before the amendment became effective, and it would not affect the Commission's legal authority with respect to those conditions.

Actions Relating to Source, Byproduct and Special Nuclear Material: The Commission has issued regulations that establish radiological criteria for the termination of licenses that fall under its regulatory authority and are protective of public health and safety. Creation of an additional cleanup standard by Federal statute or regulation may make it extremely difficult for the cleanup of a site to reach finality. This amendment of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) would make clear that the standards issued by the Commission and its Agreement States would govern cleanup of Atomic Energy Act material at facilities licensed by them. There would, however, be an exception that will allow the Commission or an Agreement State to invoke the application of CERCLA in the rare circumstance where that is necessary to effect adequate cleanup.

This amendment would also include in the CERCLA definition of "Federally permitted release" Atomic Energy Act material that is released in accordance with NRC

regulations following termination of a license issued by the Commission or by an Agreement State. This would make the treatment of such releases consistent with the treatment of releases under a current NRC license.

Relaxation of Unnecessary or Outdated Provisions

Elimination of Foreign Ownership Prohibitions: These amendments would eliminate the current restrictions on foreign ownership of utilization facilities (power and research reactors). These restrictions were originally enacted at a time when commercial development of nuclear power was in its very early stages, but the situation has changed significantly since then. Today, commercial use of nuclear power is common in many countries, and the underlying technology is widely known. The Commission would continue to scrutinize applicants for licenses to ensure that issuance of a license to a new owner would not be inimical to the common defense and security or to the health and safety of the public.

Gift Acceptance Authority: This amendment would provide the NRC with general gift acceptance authority. To implement this new authority, the Commission would be required to establish criteria to ensure that the acceptance of a gift would not compromise the integrity of the work of the agency. The issue of NRC gift acceptance authority has arisen a number of times in recent years, primarily with respect to acceptance of library and training materials from outside sources. Many other government agencies currently have such authority.

CONCLUSION

Over the past few years, we have made substantial progress in improving our regulatory programs, and we have accelerated that progress in the past year. Our interactions with this Subcommittee have contributed to this success, and we welcome your continued constructive oversight. With sufficient resources, strong leadership, and broad support, we plan to continue our efforts to enhance the effectiveness and efficiency of the NRC by pursuing the paths that already have been charted. The Commission fully expects that new areas will continue to arise, requiring attention and additional effort. As with current areas of reform, we will continue to ensure stakeholder involvement in the change process. We believe that we have laid the groundwork not only for significant short-term adjustments, but for enduring improvements to the NRC regulatory paradigm, institutionalized and stabilized through incorporation into our performance-based planning process.

FY 2000 BUDGET SUMMARY
(in thousands)

Program	FY 1998	FY 1999	FY 2000
Nuclear Reactor Safety	224,009	210,350	210,043
Nuclear Materials Safety	61,724	61,708	63,881
Nuclear Waste Safety	32,635	38,742	42,143
International Nuclear Safety Support	5,102	3,931	4,840
Management and Support	148,530	150,269	144,493
Subtotal (S&E)	472,000	465,000	465,400
Inspector General (\$K)	4,800	4,800	6,000
Total (NRC)	476,800	469,800	471,400

Mr. BARTON. Would I guess go with Mr. McGaffigan. He's getting the microphone, and then Mr. Merrifield.

STATEMENT OF EDWARD MCGAFFIGAN, JR.

Mr. MCGAFFIGAN. Mr. Chairman, I don't have a prepared statement, but I want to comment very briefly about the Superfund provision that is in our legislative package and put some context on that provision.

First, I want to say that we appreciate the support of this subcommittee for this provision in the last Congress. At the request of Mr. Hall and then chairman Mr. Schaeffer, the provision was in identical form included in Mr. Oxley's Superfund legislation, H.R. 3000.

We believe that we are at a fundamental policy difference with our colleagues at EPA. We promulgated a rule through the full Administrative Procedure Act process in July 1997 that set what we believed to be a protective standard for decommissioning and license termination at our facilities. The standard was based on voluminous analysis and public comment. But it did not come out the way the EPA would have liked it to come out. We believe the 25 millirem all pathways standard is protective of public health and safety. Our colleagues at EPA, who will speak soon, will say that that is not adequately protective; and that further actions under Superfund might be required.

This same issue comes up repeatedly. It came up in the high-level waste hearing, as you recall earlier this year. It comes up in the EPA's dealings with the States on what the standards should be for so-called technologically enhanced naturally occurring radioactive material—oil field by-products, that sort of thing. And when we are in fundamental disagreement, when an independent regulatory agency is in fundamental disagreement with the Administration, we respectfully suggest that the Congress should break the tie.

We would be happy to testify as to why we think our standard is protective. It is basically the same argument that we made earlier this year during the high-level waste hearing, and I won't go further.

Thank you, sir.

Mr. BARTON. Thank you. Mr. Merrifield?

STATEMENT OF HON. JEFFREY MERRIFIELD

Mr. MERRIFIELD. Thank you, Mr. Chairman. I would certainly associate myself with my remarks of my fellow Commissioners. I just want to expound briefly and extemporaneously on two issues that have been raised by the members this morning—this afternoon.

The first one is on the fee-base issues. This subcommittee is considering the way in which we go about paying for the programs that we regulate at the NRC. Under law, we as an agency are required to seek funding for all of the activities that we have, and so ultimately those fees are passed off to licensees. As has been noted by various members, we as an agency, we the Commissioners, have taken a position that we believe that up to 10 percent of the activities we conduct should be taken off of that fee base and should be paid for by general revenues, as they are issues that are more appropriately distributed among all of the American people, not just the licensees.

Some of these programs that have been targeted include some of the activities we have relative to Agreement States, those States which are responsible for running some of their own programs in conjunction with us; some of our international activities; some of our work in terms of regulating Federal agencies, which also are passed off to the licensed utilities and other licensees.

We do feel and do believe that the issue of moving toward general revenues makes sense. The one point I would want to leave with the members of this subcommittee: we believe those activities are very important activities—and just because we want to move those off the fee base does not take away from the fact that they

are important. The international activities, many of which were subject to statutory requirements, are vital. We have good relationships with many of our foreign counterparts. The American role in maintaining the safety of nuclear power plants across the world is vital.

Similarly, although there are many States which have taken responsibility for some of the regulation for radioactive materials in their State, the fact remains that they depend on the NRC to come up with the underlying regulations. Even if every State were to decide to become an Agreement State, we would still need to have the moneys to be able to establish those regulations. So they are important, and I want to bring that to your attention.

The second issue is the Sunshine Act. I know that has raised some concerns on the part of this committee and others. We have had a comment period on our efforts to be compliant with the Supreme Court decisions on how our Commission acts relative to our public disclosure. The point I certainly would want to make is this Commission is clearly dedicated toward the notion of openness and having full stakeholder involvement.

What we have found, and Commissioner McGaffigan and I have been talking about this and we initiated this issue at the Commission, we do not have an opportunity for the collegiality the Congress originally intended for Commissions such as the NRC. We have not had an ability to sit down and do the big picture thinking about how where we want to go as an agency; how we want to view ourselves as an agency. Those are issues that we feel are important sometimes to be able to kick around amongst the five of us.

In addition, we really want to have those in discussions a big picture way. We want them to be discussions, be we do not want them to be decisionmaking meetings. Any of the public meetings that we have now, we have committed to maintaining in full public view.

There are many other commissions out there which have already moved toward aligning themselves with the Supreme Court decision. At the Defense Facilities Nuclear Safety Board, for example, the members of that Commission meet on a daily basis to discuss these very issues. I think it is important to increase the collegiality, to make us work more effectively as a Commission. And certainly I and the other Commissioners would be happy to discuss with you our thoughts on that matter.

Thank you.

Mr. BARTON. And representing the Environmental Protection Agency, Mr. Fields.

STATEMENT OF HON. TIMOTHY FIELDS, JR.

Mr. FIELDS. Thank you, Mr. Chairman and members of the subcommittee. I am pleased to be here this afternoon to talk about the role of the Superfund program in facilities that are currently or previously licensed by the Nuclear Regulatory Commission.

Before I begin to address language on the legislative provisions before us, it is important to note that EPA expects that implementation of the NRC regulations of July 21, 1997, which are the radiological criteria for license terminations will result in cleanups within the Superfund protective risk range at the vast majority of sites.

But for a small, but important, group of sites we believe that the legislative provisions being considered today would result in not providing assurances to the public that NRC licensees are decommissioning in a manner that is protective human health and the environment.

The Superfund law and the implementing regulations, namely the National Contingency Plan, do not differentiate risks caused by radioactive contamination as compared to non-radioactive contamination. Remedial actions under the Superfund must be protective, i.e., generally within the risk range of ten to the minus fourth, ten to the minus sixth risks for all exposure pathways and all contaminated media—groundwater, surface water, sediment, air, other media.

Further, groundwater should be returned to beneficial reuse we believe, which includes meeting maximum contaminant levels for all contaminants, including radionuclides within the groundwater plume where maximum contaminant levels are relevant and appropriate for the site. It is this view that we have that current or potential future sources of drinking water, which are the source of drinking water, as you know, for more than 50 percent of the American people comes from groundwater. We believe this is a valued national resource. It must be protected to levels suitable for drinking water.

The Superfund policy, therefore, is that a site—if a site cannot be cleaned up to a protective level for a reasonably anticipated future land use because it is not cost effective or practicable, then a more restricted land use should be chosen that will meet protection levels. EPA does not generally expect that the future anticipated land use for most NRC sites will be residential.

Since September 1983, we have had one policy on the books, which is that we will generally defer to the NRC's Corrective Action Program and not place NRC sites on the Superfund national priorities list. However, as EPA indicated in the Federal Register published that year if we determine that the sites that are not on the national priorities list are not going to be cleaned up in a protective way, we would consider placing those sites on the Superfund list or taking appropriate Superfund response action. That remains EPA's position today.

EPA expects to continue to work in a cooperative fashion with the Commissioners and the Chairman of the Nuclear Regulatory Commission as we have in the past on a site-specific basis. We are concerned with the potential inefficiencies of this situation and the potential impediments to cleanup caused by the threat of dual regulation.

As a result, EPA urges again that we work together with the Nuclear Regulatory Commission on a memorandum of understanding, outlining consultation requirements and procedures for EPA to use in those rare cases where a site-specific application of NRC's decommissioning rule might result in a cleanup that is not protective of human health and the environment.

EPA stands ready to work with the Nuclear Regulatory Commission on the completion and implementation of such an MOU. While we clearly believe that NRC ought to be the lead regulator, with EPA consulting and providing advice.

Last, in conclusion, EPA believes that the areas of difficulty between EPA and NRC regarding our cleanup programs mainly involve issues of groundwater remediation, overall cleanup levels, and last methods of providing for restricted land uses where necessary, to establish cost effective cleanup levels.

EPA believes that citizens should be protected within the Superfund risk range and have ground waters restored to beneficial uses where practicable, regardless of the type of contaminant—radionuclide or otherwise. EPA cannot support legislative initiatives that would hinder our ability and responsibility to protect human health and the environment.

Mr. Chairman, thank you very much for being able to present my testimony and look forward to responding to questions.

[The prepared statement of Hon. Timothy Fields, Jr. follows:]

PREPARED STATEMENT OF HON. TIMOTHY FIELDS, JR. ASSISTANT ADMINISTRATOR,
OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, ENVIRONMENTAL PROTECTION AGENCY

INTRODUCTION

Good afternoon, Mr. Chairman, and Members of the Subcommittee. I am pleased to have the opportunity to appear before you to discuss the role of the Superfund program at facilities currently or previously licensed by the Nuclear Regulatory Commission (NRC).

Before I begin to address language in H.R. 2531, it is important to note that EPA expects that the NRC's implementation of its Radiological Criteria for License Termination ("decommissioning rule," see 62 FR 39058, July 21, 1997) will result in cleanups within the Superfund risk range at the vast majority of sites. For a small but important group of sites, however, I believe that the legislative provision being considered today would not provide assurances to the public that NRC licensees are decommissioning in a manner that is protective of human health and the environment.

OPPOSITION TO PROPOSED AMENDMENTS TO CERCLA

Section 207 of H.R. 2531 is the portion of the bill that would amend the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Administration has already opposed legislative provisions similar to those in section 207. On September 3, 1997, former NRC Chairman Shirley Ann Jackson sent a letter to Senator John H. Chafee which proposed that the same legislative provisions that are in section 207 be included in legislation reauthorizing CERCLA. In a March 25, 1998 letter to Senator Joseph Lieberman, EPA stated the Administration's opposition to NRC's draft legislative language.

HOW RADIATION IS ADDRESSED UNDER CERCLA

Section 101(14) of CERCLA defines radiation as a hazardous substance subject to actions conducted under the statute. In particular, radionuclides are designated generically as hazardous air pollutants by Clean Air Act (CAA) section 112, and CERCLA section 101(14)(E) defines the term "hazardous substance" to include CAA hazardous air pollutants.

CERCLA and the National Contingency Plan (NCP) do not differentiate risks caused by radioactive contaminants from those caused by non-radioactive contaminants. Remedial actions under CERCLA must be protective (i.e., generally within the risk range of 10^{-4} to 10^{-6}) for all exposure pathways in all contaminated media (e.g., soil, ground water, surface water, sediment, air, biota).¹ Further, ground waters should be returned to beneficial reuse, which includes meeting Maximum Contaminant Levels (MCLs) for all contaminants including radionuclides within the ground water plume, where MCLs are relevant and appropriate for the site. It is this Administration's position that current or potential future sources of drinking

¹"Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual (Part A)", EPA/540/1-89/002, December 1989.

water are a valued national resource and should be protected to levels suitable for drinking water.

EPA's CERCLA policy states that if a site cannot be cleaned up to a protective level (i.e., generally within the 10^{-4} to 10^{-6} risk range) for the "reasonably anticipated future land use" because it is not cost-effective or practicable, then a more restricted land use should be chosen that will meet a protective level. EPA does not generally expect that the future anticipated land use will be residential for most large NRC sites.

NUMBER OF NRC SITES EPA EXPECTS TO ADDRESS

EPA anticipates that there will be a very small number of sites that will be affected by our differences of opinion with NRC on what constitutes protectiveness of human health and the environment. This is consistent with the December 1997 NRC Inspector General report that states, "NRC and EPA officials agree that a relatively small number of sites will not initially clean up to the CERCLA standards."

EPA ACTION AT NRC FACILITIES

Since September 8, 1983, EPA has generally deferred listing on the National Priorities List (NPL) sites that are subject to NRC's corrective action authority because NRC's actions were generally believed to be consistent with the CERCLA requirement to protect human health and the environment.² However, as EPA indicated in the *Federal Register* notice announcing the policy of deferral to NRC, if EPA "later determines that sites which it has not listed as a matter of policy are not being properly responded to, the Agency will consider listing those sites on the NPL" (see 48 FR 10661). This remains EPA's position.

Even with EPA's policy of deferral to NRC, EPA has taken action at formerly or currently licensed NRC sites that posed a threat to human health or the environment. In some instances, EPA response actions have occurred in cooperation with NRC to address contamination not addressed by NRC, including non-radiological (chemical) contamination or off-site contamination. At other sites, EPA has taken action to address formerly licensed material that posed a threat to human health and the environment. Whenever possible, EPA attempts to work cooperatively with NRC to resolve site issues.

If the release of radionuclides into the environment from a facility is in complete compliance with a legally enforceable permit issued in accordance with the Atomic Energy Act (e.g., an NRC or NRC Agreement State license), such a release will be exempt from CERCLA liability provisions as a "federally permitted release" under CERCLA sections 101(10)(K) and 107(j) until after the license is terminated. If the release of radionuclides violates the terms of the license in any manner, however, CERCLA liability will exist for the licensed material even before the license is terminated.

MEMORANDUM OF UNDERSTANDING

EPA expects to continue to work cooperatively with NRC on a site-specific basis. We are concerned with the potential inefficiencies of this situation and the potential impediments to cleanup caused by the threat of dual regulation. EPA and NRC have exchanged draft Memoranda of Understanding (MOUs). EPA would like to enter into an MOU with NRC outlining consultation procedures for EPA to use in those rare cases where a site-specific application of NRC's decommissioning rule might result in a cleanup level that is not protective. EPA stands ready to work with NRC on the completion and implementation of an MOU with the goal of ensuring the selection of cost-effective cleanups that are protective of human health and the environment and that facilitate the beneficial reuse of properties formerly licensed by NRC.

CONCLUSION

EPA believes that the outstanding issues between EPA and NRC cleanup programs mainly involve issues of ground water remediation, overall cleanup goals, and methods of providing for restricted land uses when necessary to establish cost-effective

²EPA has the authority to choose not to respond to certain types of releases under CERCLA because existing regulatory or other authority under other Federal statutes provides for an appropriate response. As a policy matter, EPA has generally chosen not to list releases of source, byproduct, or special nuclear material that is currently licensed by NRC. This general deferral policy never applied to facilities where NRC has terminated the license, or the current license is issued by a State pursuant to a delegation of authority from the NRC pursuant to section 274 of the Atomic Energy Act (42 U.S.C. 2021).

tive cleanups goals. EPA is committed to using the full range of alternatives available to achieve cleanup of ground waters that are current or potential future sources of drinking water in a reasonable time period and to selecting cleanup goals that reflect reasonably anticipated land uses so that cleanups are protective of human health and the environment over the long term. EPA's experience with remediating Superfund sites has shown that these objectives are achievable with limitations on land use, and the use of institutional and engineering controls.

EPA believes that citizens should be protected within the NCP risk range (generally 10^{-4} to 10^{-6}) and have ground waters restored to beneficial reuse where practicable, regardless of the type of contaminant. The Agency cannot support legislative initiatives that would hinder EPA's ability and responsibility to protect human health and the environment.

Mr. Chairman, thank you for this opportunity to address the Subcommittee. I would be pleased to answer any questions you or the other Members may have.

Mr. BARTON. Thank you, Administrator Fields. The Chair wants to remind our panel and also the committee we are expecting a number of votes in about 10 minutes. I think there's one 15-minute vote and—excuse me—three 5-minute votes, so we are unfortunately going to have to—excuse me—suspend to go do that. I especially want to remind my minority friends the second panel was put on at the request of the minority, so I expect some minority members to be here when the minority—when the second panel—and that's not necessarily to Mr. Sawyer. He just happens to be the only one here.

Mr. SAWYER. I will share the message, Mr. Chairman.

Mr. BARTON. Yes. The Chair recognizes himself for the first 5 minutes of questions.

Madam Chairwoman, it is very unusual for a Federal agency to request that part of its jurisdiction be eliminated. But yet, in your NRC proposal, you do—the Commission requests that it be relieved of its anti-trust review.

If we do that, what other agencies would perform anti-trust review for nuclear power plants and companies that own them?

Ms. DICUS. Okay, there are two agencies that conduct the reviews that the NRC currently conducts. The Department of Justice and the FERC conduct these same reviews, and for us to do it also does not add value to the process. They are quite—the other two agencies do the job quite capably. For us to do it simply adds in some cases costs and time, so we feel that it is adequately covered, and there is no reason for us to perform those reviews.

Mr. BARTON. Does the—do the other Federal agencies that would do the review, do they share your view on this, the Commission's view on this?

Ms. DICUS. I have not discussed personally this with the other agencies. I would assume that they would, and would not have a problem with that. We would have to get back to you on that.

Mr. BARTON. Well, you noticed that a similar provision was in the administration electricity deregulation—

Ms. DICUS. That is true.

Mr. BARTON. [continuing] proposal.

Ms. DICUS. Yes.

Mr. BARTON. So I would take that that the Clinton Administration at least at the Presidential level supports the proposed change?

Ms. DICUS. Yes, the administration supports this change.

Mr. BARTON. Okay. The—a number of the Republicans in their opening statements showed support or concern anyway about the fact that right now the Commission, by law, has to request 100 percent funding through user fees. It is my understanding that in the budget submission to the OMB, the Commission did request authority to get some funds from general revenue. Can you comment on that?

Ms. DICUS. Sure, I would be happy to, and that is correct. In fact, for the last few years, we have requested to get perhaps up to as much as 10 percent, as Commissioner Merrifield testified, of our budget off the fee base because of the activities that we have that are important activities we think to the public health and safety, but are—really benefit the American people as a whole. We have not been successful in getting OMB to agree to this.

Mr. BARTON. Mr., oh—Commissioner.

Mr. MCGAFFIGAN. Just one brief point—there is one little piece of our legislative package that addresses part of this issue. We will solve the problem—if you pass this piece of the package—of subsidizing our review of other Federal agencies out of the fee base. We have part of our proposal within the authorization bill as opposed to the legislative package, and that is about a \$2.8 million fairness and equity issue that would be solved within the overall \$50 million issue if that provision were to be enacted. But that is the only piece that we got out of OMB.

Mr. BARTON. Okay. Administrator Fields, first I—I just want to thank you for the work you have done with me on the dry cleaning issue. We are still working on that, and I hope my office has stayed in contact with your staff as we have worked with Senator Kerry and the industry to try to get agreement. But I really appreciate your openness on that.

Mr. FIELDS. You are welcome, sir.

Mr. BARTON. On this issue, Commissioner McGaffigan basically said he wants Congress to break the tie. Does the EPA share that view of the Congress as a referee? Is the EPA willing to let the Congress break the tie on some of these who sets the standard and how do they set it issues that seems to be perennial between your agency and the Regulatory Commission?

Mr. FIELDS. No, we do not share that view. We do not think this is something that Congress needs to break the tie on. We think that there is some valid approaches as to how you make decisions about remedy that provide for protection of groundwater and appropriate cleanup goals. I would like to sit down with Mr. McGaffigan to talk—

Mr. BARTON. Maybe we can give you all pistols that—for 30 paces.

Mr. FIELDS. About how we might—how we might work together on a—what we have suggested is a memorandum of agreement. We are not trying to take the lead. We believe that the Nuclear Regulatory Commission ought to be the lead regulator in this regard, and, like I said in my testimony, we believe that 90 percent of the time, we are going to be in agreement. But we think that there are a few cases where we need to have some clear agreement as to how we will interact and how we agree on cleanup approaches for groundwater and overall cleanup goals. And we are currently in

disagreement. We think that we can sit down and write out—develop a memorandum of agreement that would make clear how we resolve disputes between the two agencies, and that is the best way to go. And we would love to do that.

Mr. BARTON. But now is not it true that you all have been in disagreement for a number of years, that this is not—

Mr. FIELDS. That is correct.

Mr. BARTON. How many—

Mr. FIELDS. We have been—

Mr. BARTON. How many years to the best of your recollection?

Mr. FIELDS. We have been—I have—we have been working on this for more than 2 years.

Mr. BARTON. More than 2 years. But is not it—

Mr. FIELDS. In terms of—

Mr. BARTON. Is not it a point in fact—

Mr. FIELDS. Trying to develop a memorandum of agreement that would allow us to arrive at some compromise in this area.

Mr. BARTON. Mr. Commissioner McGaffigan, how long have you all been in disagreement?

Mr. MCGAFFIGAN. As best I can tell, sir, a better part of a decade. And you go back to—

Mr. BARTON. So you are in disagreement about how long you have been in disagreement?

Mr. MCGAFFIGAN. Well, it depends how you define it. We provided comments to EPA about the Waste Isolation Pilot Plant back in around 1991.

Mr. BARTON. That was my understanding also that it—I am not saying Mr.—

Mr. FIELDS. I am not talking about—I was not talking about that situation.

Mr. MCGAFFIGAN. But it is the same fundamental issue.

Mr. BARTON. I understand. My time has expired. The Chair would recognize Mr. Sawyer for 5 minutes.

Mr. SAWYER. Thank you, Mr. Chairman. Let me apologize to you and Mr. Shimkus for my disorderliness, as he began his opening statement—

Mr. BARTON. It was more Mr. Markey than you.

Mr. SAWYER. Is not that always the case, Mr. Chairman?

Mr. BARTON. He is not here to defend himself.

Mr. SAWYER. Let me just ask the question that the chairman and I were talking about on our way trying to find our hearing this afternoon. The whole question of the proposal in the bill to limit the prohibition on foreign licensure to production facilities is a substantial change in policy. Could you talk a little bit about your sense of whether or not there are sufficient security standards. How that can be ensured, and your sense of motive for making this change in the first place.

Ms. DICUS. Certainly. The issue—the NRC, if a company, a foreign-owned company, had an interest in buying, for example, a nuclear power plant, we have currently, and we would maintain if there were any changes in the law, the ability to look at that company and to ensure that there is no reason that the sale of one of our facilities to a foreign-owned company would, in any way, endanger the security of the United States. We would maintain that

capability and that would be part of our decision to say yes or no to such a transaction.

And second, should we say yes to such a transaction and then we were to find some additional information, or if there would be some sort of change in the process that was not—it might be not in the best interest of the American public, we can revoke that license.

Mr. SAWYER. Yes, sir.

Ms. DICUS. You want to go further?

Mr. MCGAFFIGAN. If I could just expand on the motivation.

Ms. DICUS. That's good.

Mr. MCGAFFIGAN. The restructuring of the electric power industry in this country, in some sense, is the motivating force. We looked at this provision, and we regard it as archaic. And I will tell you my own thought process. There are very sensitive facilities, from a non-proliferation perspective, namely the fuel cycle facilities that produce the fuel that goes in the reactors, that deal with vast quantities of special nuclear material. Those fuel cycle facilities are licensed under a different provision in the Atomic Energy Act. And it has the provision that Chairman Dicus just talked about—this common defense and security finding, inimicality finding, we call it. But almost all of those facilities are today owned by foreign entities—West European entities. The sole exception is the General Electric Company. Westinghouse was the most recent to be bought by a foreign entity. So we have made determinations under this inimicality clause that certainly would prevent Iraq, Iran, North Korea—any nation of that sort—to own any of our nuclear power plants if this provision were enacted.

So it was really an effort to look at the restructuring, look at the global commerce. The nuclear power plants are not as sensitive as the fuel cycle facilities. We, indeed, have exported our nuclear power plant technology to all of the countries whose nationals I could consider possible owners—the Japanese, the French, the British, the Germans, et cetera. They build American power plants—Westinghouse or GE. So there is not a security issue with regard to many countries. There is a security issue with regard to others, but there is another clause that would prevent us from selling to the bad guys.

Mr. SAWYER. Is there an economic motive behind all of this that—particularly with the—with restructuring, both on the State level and the national level impending?

Mr. MERRIFIELD. I am jumping in. I guess, from my standpoint, this is sort of a free market issue. We have—if you were a user of power—you are sitting at home. You get power flowing through the line that may come from an oil-generated plant, a gas-generated, coal-, or nuclear. Nuclear power plants are the only energy-producing plants in the United States that cannot be bought by a foreign company. Now, the old test in the Atomic Energy Act, as was expounded by the two Commissioners, is a two-part one.

The first one is there foreign control—this does not allow foreign ownership to get a controlling majority.

The second part of the test is the inimicality, and that relates to either someone in the United States or someone outside of the United States.

What we are saying with our proposal is we want to—in order to align us with the rest of the power production industry, we would take away the majority ownership test, but we could still make that inimicality determination. And we still have the ability to take that license away if later on, having given that license, we determine it is not in the national interest to allow that licensees to keep—

Mr. SAWYER. Just one further. And you are assuring me that this has little to do with the costs that might well be stranded to a domestic industry and the willingness of foreign investors to bet on the ability to get those recovered in some way, even if at bargain basement prices?

Mr. MERRIFIELD. I do not think that—when I think of myself, that did not factor into my determination.

Ms. DICUS. No, I do not think so.

Mr. MERRIFIELD. I mean, logically, it is very difficult to make—when the Atomic Energy Act was first put together, there were concerns about having foreigners have access to this technology.

Mr. SAWYER. Sure. Sure.

Mr. MERRIFIELD. The nuclear industry and its technology is very widespread. The reason for having that distinction, that wall—

Mr. SAWYER. It is simply the security distinction that no longer applies in your view?

Ms. DICUS. Right.

Mr. MERRIFIELD. Right. Right.

Mr. SAWYER. Thank you, Mr. Chairman.

Mr. BARTON. No one has ever accused the Congress of being logical, but many have said we are archaic, so that proposal still has problems.

The gentleman from Kentucky, Mr. Whitfield, for 5 minutes.

Mr. WHITFIELD. Thank you, Mr. Chairman.

Mr. Fields, now I take it that you would be opposed, and your agency is opposed to the definitional change of federally permitted release that they are proposing?

Mr. FIELDS. Yes.

Mr. WHITFIELD. Is that correct?

Mr. FIELDS. Yes, that is correct.

Mr. WHITFIELD. And why are you all opposed to that?

Mr. FIELDS. Well, we are concerned that this—that the changes that are being proposed to the cleanup provisions would result in certain inadequate being occurred—occurring. And we are proposing that the legislation not be changes to CERCLA or the Superfund law, but rather allow us to retain the current legislative language that is in the Superfund law in terms of defining what is a radionuclide, for example. The current definition in 101 defines radionuclides as hazardous air pollutants. Radionuclides under the clean air—are defined as a hazardous air pollutant under the Clean Air Act. Under the Superfund law, they automatically get adopted as hazardous substances—under the Superfund law; and therefore, come out of the jurisdiction of the Superfund authorities. We believe that that authority is appropriate for all contaminants—radionuclides as well as non-radionuclides. And, therefore, we do not believe that ought to be changed. We believe that

ought—that current legislative construct in the current legislation ought to be retained.

Mr. WHITFIELD. Now is there any—

Mr. MERRIFIELD. Congressman, I am sorry. I would not mind responding to that if I could?

I think there are 3 things, 3 points I want to make. First, you know, our mission, as it is the EPA's is to protect public health, safety, and the environment, so an accusation that we would not be able to do that in a sufficiently high caliber, certainly I would find that somewhat objectionable.

Second, in comparison, we went out, and we used the best science available to us. We went to all of our international counterparts to determine what is the best way to come up with a standard.

Now, there are some countries that have a somewhat different standard. They may go with 20 millirem, or 15 millirem, but the one thing that we did find out, EPA, in their efforts to try to have a separate groundwater standard is the only agency in the world that calls for a separate groundwater standard. Each and every other international agency that regulates this area calls for a single standard—all pathways.

The third point that I would make is, you know, we are little territorial. You know, our business is regulating nuclear energy and nuclear materials and protecting public health and safety. We have got 2,800 people in our agency who worry about this all day long—280 of them are Ph.D.s. And I would compare our record and our expertise with any portion of the Federal Government. I note, for example, the Office of Air and Radiation—the folks that they have there at EPA who worry about controlling radioactive issues. They have got 60 people and 5 Ph.D.s, and we certainly—we feel pretty fair in making that comparison.

Mr. FIELDS. I just want to interject on that point, I did not address that point, but it—

Mr. BARTON. It sounds like you are out gunned; you are out Ph.D'd, anyway.

Mr. FIELDS. Well, this is a—this is an issue that the position the EPA has taken on this issue, Congressman, is one that is not just supported by EPA, but it is the entire remainder of the administration, including the Department of Energy, for example, who regulates and manages a lot of radionuclide cleanups as well, so this is not just an EPA position on—just let me finish my comment. It is not an EPA position on what the appropriate protection is for cleanup of these radionuclide sites. This is an administration point of view, not shared by my colleagues in the Nuclear Regulatory Commission, but I assure you this is not just an EPA position.

Mr. MCGAFFIGAN. Sir, just on that last point, I would point out that the DoE did try to propose a rule very similar to ours, and they did get a letter from EPA saying it was not supportive of the administration's Superfund principles. But the DoE would like to have adopted a rule for cleanup of its facilities. It was very similar, with the identical standard—almost identical.

Second, our rule—earlier it was talked about us riding roughshod over an EPA standard. We adopted our standard by rule. The EPA standard that we are talking about, we get in letters. We get in

guidance documents. Senator Domenici, Senator Murkowski, and Senator Nickles sent a letter to the administration asking whether one of these guidance documents was a rule, and the answer was it was not. And so they are trying to trump our rule.

Mr. BARTON. They being?

Mr. MCGAFFIGAN. They being the EPA, with guidance—

Mr. BARTON. You seem like such a nice guy, too.

Mr. MCGAFFIGAN. Yes, and he is.

Mr. MERRIFIELD. He is a very nice guy.

Mr. MCGAFFIGAN. Yes, and that is frustration we have. As Commissioner Merrifield said, we did adopt this based on the best science that we had available to us—a bipartisan commission—3 Democrats and 2 Republicans. And we are at loggerheads. All the EPA proposals for the MOU that has been talked about would read as follows: change your rule to our rule by MOU. I personally think that somebody would sue us if we did that, because we would have violated due process. Having adopted a rule through the proper procedure, we would undermine it through an MOU. So we are at loggerheads.

Mr. WHITFIELD. You know the NRC said that they may be territorial. I assumed that the EPA would not be territorial.

Mr. FIELDS. We would not be territorial.

No, but, Congressman, if the NRC had finalized the regulation that they proposed, that the same great scientists at the NRC proposed prior to the final, we would have accepted that. That would have been—that we believe that rule would have been protective. And we said that. NRC changed their position between the proposal and the final rule that came out in 1997. The proposal was fine with EPA, but the change in the—from final—from proposal to final is what caused the problem and the concern we have today.

Mr. WHITFIELD. You know, Mr. Chairman, that was not my main question.

I have 2 or 3 specific questions I would like to submit to Ms. Dicus in writing and get answers.

Ms. DICUS. Okay. Certainly.

Mr. BARTON. Without objection. And if you are willing to come back and they want to stay, you can get a second round.

Mr. WHITFIELD. I may do that.

Mr. BARTON. Mr. Hall is recognized for 5 minutes, and at the end of Mr. Hall's 5-minute question period, we will suspend until approximately 4 p.m., because we have two votes on the floor.

Mr. Hall.

Mr. HALL. Mr. Chairman, we can suspend now if would like to. I will submit my questions in writing. I do not know what questions have been asked, and I hate to waste their time.

Mr. BARTON. Okay. Then we will recognize Mr. Shimkus for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman, I have got a—

Mr. BARTON. He will—he—his will be the last questions.

Mr. SHIMKUS. Mine will be relatively quick. Going back to the user fees, and, Mr. Merrifield, you mentioned that under the proposal that internally by charging the other agencies, that is how you could make up some of the shortfall, was that correct?

Those who benefit from the NRC?

Ms. MERRIFIELD. Right. Right now, we believe we have about \$2.8 million worth of services that we provide to the Army, the Air Force, DoE—we should be able to get from them.

Ms. SHIMKUS. Right. Okay. Let me—let me try to get this shorter. Okay, what about externally? Do you provide services to people or agencies or nations outside—

Mr. MERRIFIELD. Well, we have—we have, you know, we regulate non-profit educational institutions, for example. The non-profits, they do not have the same kind of taxing structure, because we have to have 100 percent—

Mr. SHIMKUS. But could we then also offset some of the cost by charging those who are receiving benefits from your services?

Mr. MERRIFIELD. In that particular case, I am not certain whether Congress would want to impose, in effect, a tax or fee—

Mr. SHIMKUS. Well, what about internal, are we providing any assistance outside the United States?

Mr. MERRIFIELD. Chairman?

Mr. SHIMKUS. To other countries?

Ms. DICUS. Yes, we do have an international program and we do provide assistance. Some of that funding is provided to us through AID, the Agency for International Development, and through some other things. Some of it, some of our international programs is paid off the fee base, which would be one of the programs that might best benefit from the general funds.

One of our major programs is the Agreement State program, and that is the most costly one coming out the fee base for support to the Agreement States, in addition to oversight of the Agreement States.

Mr. MERRIFIELD. And we believe that those are valuable programs that benefit all American people, and for that reason, we think it ought to be paid for by the general fund.

Mr. SHIMKUS. And there will be a conflict obviously with budgetary principles, but I wanted to get those answered.

Thank you, Mr. Chairman.

Mr. BARTON. The—does Mr. Ehrlich wish to ask a full round of questions?

Mr. EHRLICH. Mr. Chairman, I may ask a full round of questions, but I would like to submit those questions—

Mr. BARTON. For the record. Okay.

Mr. EHRLICH. Yes, sir.

Mr. BARTON. Okay, the gentleman—

Mr. EHRLICH. I appreciate it.

Mr. BARTON. From North Carolina.

Mr. BURR. Just for one question, Mr. Chairman, because I did get in on the tail end as well. Mr. Fields, is—are—is the science at EPA that much better than the science at NRC?

Mr. FIELDS. We believe—

Mr. BURR. Or is the science the same, and you just have a policy difference?

Mr. FIELDS. I am sure that the Nuclear Regulatory Commission has great scientists working for them. I think we have good scientists working for us. We have a science advisory board that works for EPA that coordinates science that is used at EPA—

Mr. BURR. What would your scientists say if they looked at their scientists' information?

Mr. FIELDS. That would be an interesting question to say. All I can say is that the—our scientists have supported our position, the policy position we have taken, on groundwater cleanups and what is a protective cleanup within the risk range. I will be happy to have our—

Mr. BURR. A key word in there, and I hope—

Mr. FIELDS. Scientists take a look at the background documents that support NRC's science, and see what they say.

Mr. BURR. Hope, a key word in there, and I would hope that you would do that. Your scientists have supported your policy decision, not your—necessarily the science behind what you are after, and I am—and that is a very, very important difference that you and the EPA need to realize in this difference that the two parties have. I would yield back.

Mr. BARTON. We are going to suspend until a little before 4 p.m. We have got two votes. I am going to go ahead and officially let this panel go. There is going to be lots of questions that people want to put into the—submit to you for the record, and then we will be involved at the personal level and the staff level in working through your proposal. If you all wish to stay, and other members come back and want to ask—if you are willing to come back to the table, that is a little irregular, and, as high-powered administration appointees, you do not—you will not be required to do that—but, you know, if you are going to stay anyway, that we might could get some questions from some of the people that are not here right now.

But we appreciate the—this panel and you are officially relieved of duties. So if you need to go back to your offices, you can do that. We will come back in a little before 4 p.m.

Ms. DICUS. Okay.

Mr. BARTON. For the second panel.

Ms. DICUS. Thank you.

[Brief recess.]

Mr. BARTON. The subcommittee will come back to order.

We now want to hear from our second panel. We have Mr. Ralph Beedle, who is the Senior Vice President and Chief Nuclear Officer for the Nuclear Energy Institute, and we also have Mr. David Adelman, who is the project attorney for the Natural Resources Defense Council in New York, but his office is here in Washington, DC, I think.

We are going to put your entire statements in the record. We will recognize you, Mr. Beedle, for 5 minutes, and then we will recognize Mr. Adelman for 5 minutes. And then, Mr. Burr and I will have some questions and hopefully some of the Democrats will also be back and have some questions.

So welcome to the committee.

STATEMENTS OF RALPH BEEDLE, SENIOR VICE PRESIDENT AND CHIEF NUCLEAR OFFICER, NUCLEAR ENERGY INSTITUTE; AND DAVID E. ADELMAN, PROJECT ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL

Mr. BEEDLE. Thank you very much, Chairman Barton and member of the committee.

I am the Chief Nuclear Officer for the Nuclear Energy Institute and a Senior Vice President for that organization. NEI is the policy setting organization for the U.S. nuclear energy industry. We represent more than 275 member organizations worldwide, including every U.S. nuclear utility, suppliers, fuel cycle companies, engineering and consulting firms, radiopharmaceutical laboratories, universities, and labor unions.

Nuclear power plants produce nearly 20 percent of the Nation's electricity and provide the largest source of emission free energy in the United States. This energy source must be sustained to meet the energy, economic, and environmental protection demands of the 21st century.

U.S. nuclear energy has built a solid record of safe, efficient performance at the Nation's 103 nuclear power reactors, making it a global leader in the advanced nuclear power technology. The industry continues to be committed to safe nuclear plant operation, and must be accompanied—and that must be accompanied by the Nuclear Regulatory Commission ability to fulfill its mission for a strong and credible regulator.

Electric utilities continue to transition to a competitive electricity market, and the NRC must improve its efficiency and effectiveness in its regulations.

In the past year, the Nuclear Regulatory Commissioners and staff have taken initial steps toward meaningful regulatory reform. The industry applauds the agency's demonstrations that difficult issues can be resolved, and important decisions made in an efficient and timely manner. It is important that Congress understand and continue to provide ongoing oversight of and support for the Nuclear Regulatory Commission in its transition to a regulatory process that uses risk insights to focus resources on those areas most important to maintaining the high standards of safety.

The task at hand is sustaining the effort that the Commission started last year. This transition is an objective, safety-focused regulatory process that will require a view of statutory provisions, some of which are no longer relevant.

Specifically, I would like to expand on three points that the industry believes merit congressional attention.

First, the cost of NRC programs that are not directly related to the regulation of NRC licensees should not be paid for by licensees. This was the issue that Congressman Burr raised earlier. Examples of these programs are the international activities, work in support of Federal agencies, and NRC Agreement States. This committee last year, in a report on H.R. 3532, stated and I quote: "the NRC utilizes annual charges assessed against licensees to cover the cost of administering programs that do not directly relate to the regulation of or provide a direct benefit to these licensees."

In fact, the NRC itself has recommended, as you have been told earlier, that this be deleted from their budgeting process, but that was overturned by the Office of Management and Budget.

This committee, in reauthorizing the NRC, should remove these items from the user fee base.

The second item is that the NRC must develop a long-range strategic plan for regulatory reform and continue its transition to a nuclear plant oversight process that focuses resources on those areas most important to maintaining safety.

And the third, the industry does, indeed, support the NRC's legislative proposals contained in H.R. 3521. Of particular importance is the designation of the NRC's residual radiation standard as the sole requirement for NRC license facilities for the cleanup of radioactive materials. Congress also should approve proposals to allow foreign ownership of the commercial nuclear power plants and eliminate the need for the NRC to conduct anti-trust reviews.

We recommend that an additional provision be considered, one that would provide the NRC with the flexibility to redefine its organizational structure. The agency is currently restrained from doing so by the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974, which require that the NRC establish and maintain specific offices and functions. The industry believes that the NRC is in the best position to determine the organizational arrangements that will enable it to fulfill its mandate to assure public health and safety.

Mr. Chairman, continued oversight of the NRC by this subcommittee is important to ensure that the necessary steps toward the broad reform of the agency are being taken in a comprehensive and timely manner. The NRC has made tremendous progress during the past year, but it must establish a long-term vision and work plan for making the regulatory framework of the commercial nuclear energy industry risk-informed and performance-based and focused on those areas that are most important to protect the public health and safety.

Mr. Chairman, I want to thank the subcommittee for the opportunity to present the views of the industry and welcome any questions that members might have.

[The prepared statement of Ralph Beedle follows:]

PREPARED STATEMENT OF RALPH BEEDLE, CHIEF NUCLEAR OFFICER AND SENIOR VICE PRESIDENT, NUCLEAR ENERGY INSTITUTE

Chairman Barton, Ranking Member Hall and members of the subcommittee, my name is Ralph Beedle. I am chief nuclear officer and senior vice president of the Nuclear Energy Institute. The Institute is the Washington-based policy organization for the U.S. nuclear energy industry and more than 275 members in nuclear-related fields. In addition to representing every U.S. utility that operates a nuclear power plant, NEI's membership includes nuclear fuel cycle companies, suppliers, engineering and consulting firms, national research laboratories, manufacturers of radiopharmaceuticals, universities, labor unions and law firms.

Nuclear power plants produce nearly 20 percent of the nation's electricity and provide the largest source of emission-free energy in the United States. Unlike any other electric generation source, nuclear power is unique because the costs of the entire electricity production lifecycle—including the uranium fuel manufacturing process, NRC regulation, waste management and plant decommissioning—are included in the electricity cost to consumers. Nuclear energy's clean air benefits are affordably priced, with production costs that are a fraction of a cent more than production costs of coal-fired electricity and that are significantly less than natural gas, oil, solar or wind power.

The U.S. nuclear energy industry has built an exceptional record of safe, efficient performance at nuclear power plants, making it the global leader in advanced nuclear power technology. And as the nation's electricity demands grows as a result of a robust economy and the expansion of sectors such as information technology, the importance of nuclear generation will increase. Increasingly stringent U.S. clean air regulations and international carbon dioxide reduction goals also will underscore the importance of nuclear energy.

But the industry's continued safe and efficient nuclear plant operation must be accompanied by the Nuclear Regulatory Commission's ability to fulfill its mission as a strong, credible regulator. As utilities continue to make the transition to a competitive electricity market, the NRC must seek to maintain public trust and confidence in the safety of nuclear energy while improving the efficiency and effectiveness of its regulations.

Not surprisingly, the transition to an objective, safety-focused regulatory process will require a review of statutory provisions are no longer relevant in the evolving regulatory environment and as extensive operating experience has been gained at the nation's 103 nuclear power plants.

The Institute fully supports the NRC's legislative proposals contained in H.R. 3521. I would like to expand on three nuclear regulatory issues that the industry supports—some of which are contained in NRC's proposal—and that are significant enough to merit congressional attention:

- The cost of NRC programs that are not directly related to regulating NRC licensees should not be included in user fees assessed to those licensees;
- The need for NRC to develop a long-term plan for reforming regulatory procedures and to continue its transition to a regulatory culture that draws on 30 years of regulatory and industry experience and lessons learned;
- The industry supports NRC's legislative proposals detailed in Title II of H.R. 3521. Of particular importance to the nuclear industry is the designation of NRC standards for residual radiation as the sole requirement for the radiological cleanup of Atomic Energy Act material at NRC-licensed facilities as well as the proposals to allow foreign ownership of nuclear plants and to eliminate antitrust reviews conducted by the NRC. In addition to the NRC proposals mentioned above, the industry believes Congress should grant the NRC greater management flexibility by eliminating Atomic Energy Act requirements so that NRC may reorganize its staff and programs amid the agency's transition to objective, safety-focused regulatory practices.

Adjusting NRC's User Fee

For the past nine years, the NRC has submitted a budget that is essentially fully funded through user fees collected from its licensees. Last year, Congress approved a single-year extension to the NRC's authority to collect this 100-percent user fee. The agency's user fee initially was set at 33 percent of NRC's budget. However, Congress, as part of the Omnibus Budget Reconciliation Act of 1990, required the agency to recover approximately 100 percent of its budget authority by assessing annual fees upon NRC licensees.

Under the 1990 law, NRC licensees must pay for the cost of NRC activities devoted to regulation. However, some of NRC's activities are unrelated to the regulation of nuclear power plants. Among the unrelated programs for which licensees should not bear the costs are: international activities; oversight of agreement states; license review work for other federal agencies; fee reductions to subsidize nonprofit educational institutions and small entities; decommissioning management and reclamation activities; and other generic activities. These activities, totaling approximately \$50 million annually, should be removed from the user fee. If these activities are required, they are more appropriately financed with general revenues.

This recommendation is not a new concept. Last year, this committee, in its report on H.R. 3532, stated that "the NRC utilizes annual charges assessed against licensees to cover the costs of administering programs *which do not directly relate to the regulation of, nor provide a direct benefit to, these licensees.*"¹ The Senate Environment and Public Works Committee agreed and in its 1998 report accompanying S. 2090, stated that the "concerns about fair and equitable assessment of fees continue to be relevant today."² That committee concluded that "the cost of such activities should not be recovered through fee collection, but rather through direct appropriation."

Congressional appropriators are well aware of the legitimacy of these arguments. Just last week, the House Appropriations Subcommittee on Energy and Water urged

¹ Report No. 105-680 to accompany H.R. 3532, August 6, 1998.

² Report No. 105-223 to accompany S. 2090, June 25, 1998.

the NRC and the White House to remove these expenditures from user fees to licensees. Meanwhile, the Senate Appropriations Committee last year appropriated \$33 million from general revenues to pay for several NRC programs. That provision, however, later was dropped.

Even the NRC is in agreement on this matter. A 1994 report from the NRC Inspector General concluded that NRC's existing user fee should be adjusted to "minimize licensees' major concerns about fairness, equity and the administrative burden of fees."³ The trade press reported that the NRC's fiscal year 2000 budget recommendation to the Office of Management and Budget included a proposal that these programs be supported by general revenues, not user fees.⁴ OMB was reported to have overruled this proposal.

In addition, the NRC has, in our view, failed to meet the requirement that user fees "to the maximum extent possible have a reasonable relationship to the cost" of the services being rendered. Nearly 80 percent of the user fee is collected as a generic assessment levied against NRC licensees; the remainder is levied for discrete services. The NRC has, in effect, created a "miscellaneous" category that encompasses most of its budget. This practice is not only contrary to sound and accountable budgeting, but also counter to congressional mandates.

Mr. Chairman, authorizers, appropriators, regulators and the industry alike agree that the user fee should be adjusted to eliminate approximately \$50 million in unrelated fees. This subcommittee, given its jurisdiction on this issue, is the appropriate body to authorize the user fee adjustment and recommend the NRC institute more accountable budget practices.

NRC Reform Focuses on Issues Most Important To Safety

The NRC deserves recognition for taking initial, positive steps toward regulatory reform based upon the industry's improved safety performance and efficiency gains during the past three decades. Specifically, the new power reactor oversight process that is being tested at nine pilot plants should focus NRC and industry resources on matters most important to safety. Under the new process, NRC inspections, plant assessments and enforcement actions will have a greater safety focus than in the past. Additionally, the NRC has applied insights from probabilistic risk analyses to adjust requirements in the areas of in-service testing, in-service inspection, quality assurance and plant technical specifications.

Although real progress has been made, the improved safety focus applied in the aforementioned activities needs to be incorporated throughout NRC regulation and agency processes for overseeing the industry. This measure is necessary to ensure consistency across requirements and processes and to best utilize NRC and industry resources.

In addition, NRC's reform effort must be sustained and its gains must be tangible. Change is a difficult, sometimes slow process. To ensure the NRC's continued success in this endeavor, the agency should, at this subcommittee's request, formulate a multi-year blueprint that provides a detailed set of key planning assumptions and measurable goals to be met as part of its effort to become a more safety-focused and performance based body. This multi-year blueprint should serve as a living document that is updated annually.

Specifically, the subcommittee should urge the NRC to develop and implement a long-range strategy to include the following principles:

- a safety-focused regulatory framework that incorporates risk insights;
- an efficient and accountable regulatory agency;
- an integrated NRC strategy for achieving the objectives of regulatory reform;
- a specific timetable and milestones to ensure the NRC's long-range plan is implemented on schedule; and
- staff resources and a fully accountable budget that supports fundamental NRC reform while focusing on significant regulatory activities for the future, such as license renewal.

In addition, this multi-year plan should include an annual accounting of meaningful NRC objectives with measurable results. It also should recognize improved plant safety and performance and account for new demands on the regulatory process as a result of the transition to a competitive electricity market.

The industry recommends that this subcommittee request annual and multi-year reports from the NRC documenting its progress in implementing regulatory reform with an attainable budgeting process.

³Report to the Congress on the U.S. Nuclear Regulatory Commission's Licensee Fee Policy Review, February 1994.

⁴"OMB Rejects NRC Efforts To Remove Generic Activities From Fee Base," Inside N.R.C., March 1, 1999.

Industry Supports NRC's Legislative Proposals

Mr. Chairman, the NEI supports the 11 legislative proposals the NRC submitted to Congress under Title II of H.R. 3521. Although most of the proposals pertain to procedural measures, three deserve a more detailed explanation.

First, this subcommittee is uniquely positioned to resolve the impasse between the NRC and the Environmental Protection Agency in setting radiation cleanup standards for NRC-licensed facilities. This duplicative regulation exists in many areas, but is most apparent in establishing residual radiation standards for the remediation of radioactive materials at NRC-licensed sites.

Resolving this impasse is particularly important at sites where nuclear plants closed and are in the process of being torn down. The NRC has set a radiation cleanup standard based on sound science and experience that fully protects public safety and the environment. Because the EPA has traditionally followed a significantly different radiation standard compared to the NRC. In fact, the EPA has threatened to intervene at sites once the NRC has determined that radiation standards will be met and has withdrawn its own regulatory oversight of the property. Therefore, decommissioned sites face contradictory dual federal regulation regarding the same issue.

The NRC implemented a 1997 rule for license termination that insures full protection of public health and safety through a comprehensive radiation protection program based on limiting the total radiation exposure to the public. The NRC issued its rule after four years of thorough scientific study and extensive public input including more than 7,000 comments from the scientific and professional community, state, tribal and local governments, environmental groups and NRC licensees. The EPA was an active participant in the NRC's process. The NRC has used its rule to successfully decommission more than 70 sites.

The EPA's continued efforts to develop a radiation standard and to ignore the NRC standard inappropriately focuses resources on a bureaucratic stalemate. This effort detracts from the primary mission of safe and effective site cleanup. It violates the Clinton Administration's 1993 Executive Order that restricts federal agencies from creating duplicative regulations that result in an unreasonable expense to the American people. The EPA's guidance is inconsistent with the NRC's deliberate, scientific approach to decommissioning standards for nuclear power plants.

The second NRC proposal is a shared goal of the nuclear energy industry—to improve the efficiency of the nuclear regulatory process by eliminating statutory requirements that the NRC conduct antitrust reviews while preserving NRC authority on existing antitrust license conditions.

Section 105c of the Atomic Energy Act affords the NRC broad authority to conduct antitrust reviews when power plant licenses are issued. Under that authority, the operating licenses of 34 commercial nuclear power plants contain antitrust provisions. As the industry moves forward in a competitive market, utilities will be making decisions regarding restructuring of their companies that the NRC may conclude have potential antitrust implications. These decisions could become subject to antitrust reviews by the NRC under Section 105c. Yet Congress has given other federal agencies comprehensive responsibility to enforce antitrust laws affecting electric utilities. For example, the Justice Department, the Federal Trade Commission, the SEC and state governmental agencies all will examine restructuring decisions for potential antitrust issues.

As such, Section 105c no longer serves a valid purpose and should be rescinded. Instead, the NRC should focus its resources on its fundamental mission of protecting public health and safety. Although the industry recommends that section 105c be repealed, sections 105a and 105b continue to serve valid purposes. Section 105a clarifies that federal antitrust laws apply to NRC licensees, and section 105b requires the NRC to report to the U.S. attorney general any information that might represent a violation of antitrust laws.

The third NRC proposal concerns the Atomic Energy Act's restriction on foreign ownership of U.S. commercial nuclear power plants. This provision seems somewhat of an anachronism because of the global political and worldwide economic changes that have occurred since the passage of the Atomic Energy Act. The statute prohibits the NRC from issuing a commercial reactor license to a foreign entity; to any entity which is owned, controlled, or dominated by a foreign entity; or if the NRC determines that license issuance would be "inimicable to the common defense and security" of the United States. The subcommittee should eliminate this outdated provision, as recommended by the NRC and the industry.

The Atomic Energy Act's foreign ownership provisions were drafted at the infancy of the nuclear age, when the United States had good reason to restrict access to nuclear technology by prohibiting foreign ownership of U.S. facilities. Times have changed and prohibiting foreign ownership of commercial facilities by U.S. allies no

longer makes sense. In fact, the prohibition on foreign ownership eliminates sources of investment capital and operating expertise that we should be encouraging, not discouraging. Therefore, the industry agrees with the NRC that the statute should be amended to remove the prohibition on foreign ownership and to reflect the new global business environment, where large capital-intensive projects are routinely developed by multi-national corporations and financed through international credit markets. The amendment should, however, preserve the NRC's authority to take all steps necessary to protect the common defense and security of the United States.

In addition to the NRC proposals mentioned above, the industry believes Congress should grant the NRC greater latitude to reorganize its staff and programs amid the agency's transition to a new, streamlined approach regulatory practices. Currently, the NRC is restrained from doing so by a statutory relic. The Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974 require the NRC to establish specific offices and functions.

The industry believes the NRC is best positioned to determine what organizational arrangement will enable it to fulfill its legal mandate to protect public health and safety and the common defense and security associated with the use of nuclear materials. In our view, Congress should not mandate the NRC's organizational structure. Those requirements merely create an unwarranted burden for the agency and should be repealed by this subcommittee.

Conclusion

In summary, Mr. Chairman, the industry supports most of NRC's legislative amendments, including the agency's objectives to enhance security at NRC-licensed facilities, to eliminate restrictions on foreign ownership of power reactors and research reactors and to eliminate NRC's antitrust review authority for pending or new applications for a license to construct or operate a nuclear plant.

The industry also looks to this subcommittee to adopt authorizing language that would accomplish the following goals:

- The reauthorization of the NRC's user fee in a manner that does not require NRC licensees to pay for programs that do not directly benefit them;
- The NRC's submission to Congress of a long-term blueprint for regulatory reform that provides measurable objectives and anticipated results. This strategic plan would serve as a valuable resource for stakeholders involved and affected by NRC's reform efforts;
- The industry supports NRC's legislative proposals detailed in Title II of H.R. 3521. Of particular importance to the nuclear industry is the designation of NRC standards for residual radiation as the sole requirement for the radiological cleanup of Atomic Energy Act material at NRC-licensed facilities as well as the proposals to allow foreign ownership of nuclear plants and to eliminate antitrust reviews conducted by the NRC. In addition to the NRC proposals mentioned above, the industry believes Congress should grant the NRC greater latitude by eliminating Atomic Energy Act requirements so that the NRC can reorganize its staff and programs amid the agency's transition to a new, streamlined approach regulatory practices.
- The elimination of impediments to NRC's reform, including language in the Atomic Energy Act of 1954 and the Energy Reauthorization Act of 1974 that prevent the NRC from determining its own organizational structure.

Mr. BARTON. Thank you, Mr. Beedle. Mr. Adelman.

STATEMENT OF DAVID E. ADELMAN

Mr. ADELMAN. First, I would like to thank the committee for giving me the opportunity to speak today. My testimony will focus on two issues. First, the Army Corps of Engineers implementation of the formerly utilized—

Mr. BARTON. Pull the microphone up a little bit closer. Thank you, sir.

Mr. ADELMAN. My testimony will address two issues. First, the Army Corps of Engineers implementation of the formerly utilized Site Remediation Action Program, or FUSRAP. NRDC is specifically concerned about the disposal of radioactive materials at unlicensed facilities. NRDC opposes this based on policy, legal, and technical grounds.

The second issue I will address concerns the two amendments proposed to the Superfund law, where NRC facilities would be exempt from Superfund actions if they were closed according to NRC regulations. NRDC strongly opposes this, based both on policy and technical bases.

The FUSRAP program began in 1974 to clean out Manhattan Project sites, and involves removing and disposing of large quantities of radioactive waste. The Army Corps of Engineers decision to dispose of some of that material in unlicensed facilities is based on a highly formalistic argument that Uranium Mill Tailings Act of 1978 does not apply retroactively. In other words, that it does not apply to radioactive waste generated prior to passage of the Act in November 1978. This is a classic instance of form over substance.

As a basic matter of public policy, regulation of radioactive materials should not be contingent on the date on which it was generated. In the 1978 Act, Congress adopted a new definition of radioactive byproduct material to extend NRC's regulatory authority over all radioactive waste generated in the course of the nuclear fuel cycle. The statute refers to active and inactive sites. It is implicit in these references that Congress' intent—that the Act applied to pre-1978 waste.

Furthermore, in the leading case, *Kerr-McGee*, the court found that the purpose of the 1978 Act was to close the regulatory gap. Prior to 1978, uranium and thorium mill tailings and byproduct materials from their processing was not regulated.

Congress' intent was to ensure that these materials were properly handled and disposed of in an environmentally sound manner.

Disposing of radioactively contaminated waste in hazardous waste facility raises significant environmental concerns.

First, it circumvents public participation processes that are part of NRC licensing.

Second, it poses potentially significant risks to groundwater, as RCRA does not regulate radioactively contaminated wastes.

Third, worker health and safety regulations do not address risks associated with radioactive materials.

And fourth, hazardous disposal sites are not constructed to contain long-lived radioactive contaminants. In other words, this represents a significant erosion of radioactive waste disposal standards.

Although NRDC maintains that the 1978 Act is clear, the policy of NRC and the Corps requires Congress to clarify the statute to state explicitly that it also applies to radioactive waste generated prior to 1978.

The second issue I want to address are the two proposed amendments to Superfund exempting NRC license facilities from Superfund actions once their license is properly terminated.

The proposed amendment single out NRC license facilities for exemption from Superfund. Accordingly, the burden should be on the proponents to demonstrate why releases of radioactive contaminants from these facilities should receive this special treatment. From a technical perspective, this is not justifiable. Cleanup of radioactive materials relies on the same technologies and raises the

same environmental concerns, such as groundwater and surface waters, that cleanup of hazardous waste prevent.

Once a site license terminates, EPA is the regulating authority. Eliminating Superfund actions removes EPA's primary vehicle for addressing environmental releases. This is of particular concern because NRC relies on a global site standard. As a result, a release could comply with the NRC standard, but violate Safe Drinking Water Act regulations. Accordingly, EPA must have authority to protect critical groundwater resources.

NRDC urges the committee to reject the proposed amendments to Superfund.

[The prepared statement of David E. Adelman follows:]

PREPARED STATEMENT OF DAVID E. ADELMAN, PROJECT ATTORNEY, NUCLEAR PROGRAM, NATURAL RESOURCES DEFENSE COUNCIL

Chairman Bliley and Members of the Committee, I appreciate this opportunity to appear before you today to discuss certain aspects of H.R. 2531, a bill authorizing appropriations for the Nuclear Regulatory Commission ("NRC"). My comments will focus on two issues: (1) NRC oversight of the implementation by the U.S. Army Corps of Engineers' ("USACE") of the Formerly Utilized Sites Remedial Action Program ("FUSRAP"); and (2) the proposed amendments to the Comprehensive Environmental Response, Compensation and Liability Act, ("CERCLA" or "Superfund"), 42 U.S.C. § 9601 *et seq.*, which would effectively exempt from CERCLA all NRC-licensed facilities once their license is properly terminated.

The Natural Resources Defense Council, Inc. ("NRDC") is a national non-profit membership environmental organization with offices in Washington, D.C., New York City, San Francisco and Los Angeles. NRDC has a nationwide membership of approximately 450,000 individuals. NRDC's activities include maintaining and enhancing environmental quality and monitoring federal agency actions to ensure that federal statutes enacted to protect human health and the environment are fully and properly implemented. Since its inception in 1970, NRDC has sought to improve the environmental, health, and safety conditions at and surrounding nuclear facilities operated by Department of Energy ("DOE") and its predecessor agencies and the commercial nuclear sector.

I. IMPLEMENTATION OF THE FUSRAP PROGRAM

FUSRAP provides for the clean-up and disposal of radioactive materials at various industrial facilities around the country that once performed work as part of the Manhattan Project and other early activities of the Atomic Energy Commission. DOE began implementation of FUSRAP in 1974, when it was recognized that a number of industrial sites associated with nuclear weapons and energy programs during the 1940s, 1950s, and 1960s contained substantial levels of radioactive contamination (primarily uranium and thorium).

According to DOE, a total of 46 sites have been identified for cleanup under FUSRAP. By 1997, cleanup had been completed at 25 of these sites. There are thus 21 remaining sites to be cleaned up under the program, located in Connecticut, Illinois, Maryland, Massachusetts, Missouri, New Jersey, New York and Ohio. The cleanup work under FUSRAP consists primarily of the treatment or removal of soil and other substances containing radioactive "byproduct material," as defined in Atomic Energy Act ("AEA"), 42 U.S.C. § 2014(e).

A. Congress' Transfer of Responsibility for The FUSRAP Program to USACE

On October 13, 1997, Congress transferred administration of FUSRAP from DOE to USACE in the 1998 Energy and Water Development Appropriations Act, Pub. L. No. 105-62. Subsequently, in the Energy and Water Development Appropriations Act of 1999, Congress affirmed USACE's responsibility for and provided funding for FUSRAP. At this time, Congress also clarified two issues: (1) USACE's implementation of FUSRAP was "subject to the administrative, procedural, and regulatory provisions" of CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300; and (2) "... except as stated herein, these provisions do not alter, curtail or limit the authorities, functions or responsibilities of other agencies under the Atomic Energy Act..."

USACE, however, does not have authority to handle the radioactive materials involved in implementing FUSRAP. According to a letter to the Secretaries of Energy

and Defense from Senator Pete V. Domenici and Representative Joseph M. McDade, the Chairmen of the Senate and House Subcommittees on Energy and Water Development, the transfer of budget authority over FUSRAP to USACE was not intended to affect DOE's regulatory authority over the program. Instead, Congress apparently expected "that basic underlying authorities for the program [would] remain unaltered and the responsibility of DOE."¹ There is nothing in the Act to suggest a contrary result; the text does not grant USACE anything beyond budget authority over FUSRAP.

DOE maintains that "[t]he [FUSRAP] transfer legislation did not make the Corps a DOE contractor, or otherwise subject the Corps' activities to the control or direction of DOE."² Further, while DOE defers to NRC to determine whether USACE is required to obtain an NRC license, the Department has stated that NRC "should evaluate the licensability of the Corps' activities in the same manner as it would evaluate the activities of any other "person" within the meaning of the Atomic Energy Act."

DOE has also questioned whether USACE could rely solely on CERCLA authority to avoid NRC oversight. Specifically, CERCLA exempts most cleanup activities from federal, state, or local licensing requirements, 42 U.S.C. § 9621(e); although, as NRC and USACE concede, this exemption applies only to activities at the cleanup site (*i.e.*, not off-site shipments or disposal). Despite the unique challenges posed by environmental cleanups involving radioactive materials and USACE's lack of regulatory authority—or regulations—to handle radioactive materials, both NRC and USACE have invoked the CERCLA exemption to shield USACE from the AEA requirement that it obtain an NRC license.

This is a profound problem for two reasons. First, the NRC has as its fundamental goal the safety and security of the nation's nuclear activities. The same cannot be said of USACE. Its institutional mission is, by design, focused on other matters. Certainly it must be acknowledged that the army's record of handling nuclear and other hazardous wastes is not good.³ The dangers posed by the handling of radioactive waste counsel strongly in favor of NRC licensing of the FUSRAP program as administered by USACE. The numerous matters implicated by USACE's unregulated handling of FUSRAP wastes, including worker protection, cleanup standards, property rights and long term liability, can only benefit from NRC oversight.

Second, and more fundamentally, the laws governing the utilization and cleanup of nuclear materials are simply too important to allow them to be ignored. In recognition of the highly technical nature of radioactive materials and of the extreme dangers they pose, Congress reposed responsibility for the administration of those laws in the NRC and, to a lesser extent, DOE. In short, an environmental cleanup action involving radioactive materials is not your typical Superfund project, particularly where as here the contaminants remain hazardous for many thousands of years.

Congress has commanded that, with very few exceptions, no agencies other than DOE be permitted to handle nuclear materials except in accordance with a license issued by the NRC. To now allow USACE to handle the radioactive materials associated with FUSRAP cleanups without licensing and oversight by the NRC flouts Congressional intent. Accordingly, as part of the transfer of authority over FUSRAP to USACE, Congress should require that it first obtain a license from the NRC.

B. Off-Site Disposal of FUSRAP Radioactive Wastes at Unlicensed Facilities

USACE's disposal of radioactive waste at the Safety-Kleen facility in Buttonwillow, California, which is not licensed by the NRC, has generated substantial public, state, and Congressional attention. More than 2,200 tons, or about 83 rail cars, of radioactive waste from a site in northern New York state was disposed at the Safety-Kleen facility, which is permitted under Part C of the Resources Conservation Recovery Act ("RCRA"), 42 U.S.C. §§ 6901 *et seq.*, but neither designed nor permitted to dispose of radioactive wastes. In addition, USACE inadvertently sent another 86 tons of radioactive byproduct material, mainly contaminated soil, to a non-hazardous, solid-waste landfill in Ohio.

Although USACE and the NRC concede that off-site disposal of radioactive waste is not exempt from NRC's licensing requirements, they claim that radioactive waste

¹Letter dated November 6, 1997 from Senator Pete V. Domenici and Representative Joseph M. McDade to Secretary of Energy Federico Pena and Secretary of Defense William S. Cohen.

²Letter dated January 14, 1999, from William J. Dennison, Assistant General Counsel for Environment at DOE, to John T. Greeves, Office of Waste Management at NRC.

³These fears have been born out at one of the sites in North Tonawanda, New York, where USACE has proposed a cleanup standard that is ten times weaker than that proposed by DOE when it was implementing the cleanup. To reduce costs, USACE is relying on substantially relaxed cleanup standards.

from certain FUSRAP sites (12 out of the remaining 21) is not covered by the AEA and need not be disposed at an NRC-licensed facility. However, the same types of byproduct material removed from the remaining 9 FUSRAP sites are covered by the AEA, according to NRC and USACE, and must be disposed of at NRC-licensed facilities.

The Atomic Energy Act mandates disposal of radioactive “byproduct material” at a licensed facility. 42 U.S.C. §§ 2112, 2114 (prohibiting transfer or receipt of byproduct material at an unlicensed facility).⁴ Accordingly, the NRC has long had a policy requiring disposal of byproduct material only at licensed facilities. This policy is based on the goal of protecting public health and the environment. USACE’s disposal of byproduct material from certain FUSRAP sites at unlicensed facilities therefore violates the AEA and is contrary to long-established NRC policy.

The NRC and USACE acknowledge that radioactive wastes generated at the FUSRAP sites are “byproduct materials” as that term is defined in Section 11(e)(2) of the Atomic Energy Act, 42 U.S.C. § 2014(e)(2).⁵ However, they claim that because certain byproduct material was generated prior to 1978, the year in which Congress closed the loophole on NRC regulation of such waste by passing UMTRCA, and resulted from activities that were not licensed by the NRC in or after 1978, it is not covered by the AEA and need not be disposed at an NRC-licensed facility. Under this reasoning, such wastes could be disposed of at a regular landfill if they do not contain hazardous constituents. Accordingly, the factor governing whether FUSRAP radioactive wastes must be disposed of at an NRC-licensed facility is whether it was originally generated prior to the passage of UMTRCA.

NRC’s and USACE’s assertion that UMTRCA does not apply to pre-1978 wastes is contrary to established law. In the Findings and Purpose section of UMTRCA, Congress concludes that there are “potential and significant radiation hazard[s] to the public” from “mill tailings located at active and inactive mill operations.” 42 U.S.C. § 7901(a). In this section, Congress further states that “[t]he purposes of this Act are to provide” (1) in cooperation with the interested States, Indian tribes, and the persons who own or control inactive mill tailings sites, a program of assessment and remedial action at such sites... and (2) a program to regulate mill tailings during uranium or thorium ore processing at active mill operations... 42 U.S.C. § 7901(b). Congress’ intent in enacting UMTRCA is clear from this language: UMTRCA applies to byproduct material generated at sites closed prior to passage of the Act in 1978.

The leading case interpreting UMTRCA, *Kerr-McGee v. NRC*, 903 F.2d 1 (D.C. Cir. 1990), affirms the plain meaning of the statute. In *Kerr-McGee*, the Court held that “...the definition of ‘byproduct material’... adopted by Congress was designed to extend the NRC’s regulatory authority over *all* wastes resulting from the extraction or concentration of source materials in the course of the nuclear fuel cycle.” *Kerr-McGee*, 902 F.2d at 7 (emphasis in original). Moreover, it is implicit in the *Kerr-McGee* holding that UMTRCA applies retroactively to wastes generated prior to 1978, as the byproduct material in question was generated from 1931 until 1973, when the *Kerr-McGee* mill closed. This finding is further born out in the Court’s finding that the UMTRCA legislative history evinces two purposes:

[F]irst, to close the gap in NRC regulatory jurisdiction over the nuclear fuel cycle by subjecting uranium and thorium mill tailings to the NRC’s licensing authority; and second, to provide a comprehensive regulatory regime for the safe disposal and stabilization of the tailings. Title I of UMTRCA provided a specific remedial program for twenty designated inactive uranium milling sites. Title II established a comprehensive remedial program for mill tailings at all other sites.

Kerr-McGee, 902 F.2d at 3. In concluding, the Court found that the new definition of byproduct material in UMTRCA “serves as the trigger for determining what materials are to be subject to the remedial program established by Title II”—date of generation is not a relevant factor. *Id.*

USACE’s decision to dispose of radioactive wastes in unlicensed facilities and NRC’s decision to sanction it runs counter to basic common sense, technical reasoning, and established law. There is no basis to distinguish pre-1978 byproduct wastes from those generated after 1978, whether legally or scientifically. Indeed, in

⁴In enacting the Uranium Mill Tailings Radiation Control Act (“UMTRCA”) of 1978, Congress expanded the definition of byproduct material to include “the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore primarily for its source material content.” 42 U.S.C. § 2014(e)(2).

⁵The AEA also prohibits the transfer or receipt in interstate commerce of any byproduct material unless licensed by the NRC or otherwise authorized under AEA Sections 82 and 84, 42 U.S.C. §§ 2112, 2114.

their own briefings, NRC staff have acknowledged as much by referencing portions of the Kerr-McGee opinion holding that UMTRCA applies to “*all*” byproduct material. See NRC’s Staff’s Brief and Evidence on Issues raised by The State of Utah (January 6, 1993).

As the Conference of Radiation Control Program Directors has found, it make no sense from a technical perspective to base regulation of radioactive waste on when the material was generated—time is not a relevant factor when wastes remain hazardous for many thousands of years. Moreover, this is consistent with disposal practices at FUSRAP sites to date, where radioactive wastes have been disposed of at facilities licensed by the NRC or by agreement states or at DOE-operated sites. The Conference has formerly recommended that the NRC “reconsider its position on their lack of jurisdiction over 11(e)(2) byproduct material processed before the enactment of UMTRCA in 1978.”⁶

Disposal of radioactive wastes in unlicensed facilities raises important environmental risks, as these facilities are not designed to handle large volumes of long-lived radioactive materials. The risks include threats to local groundwater (monitoring doesn’t include radionuclides); inadequate or inappropriate worker health and safety regulations (inhalation standards for radionuclides are of particular concern); and failure to provide for long-term institutional controls to prevent future intrusions that could release contaminants from the site long after it has closed—this a particular concern where long-lived radioactive materials, such as uranium and thorium, are involved. These deficiencies have important implications for DOE, which may become responsible for monitoring sites requiring institutional controls to protect the public and environment against releases of radioactive materials in the long-term. 42 U.S.C. § 10171(b); see also 62 Fed. Reg. 39070 (July 21, 1997).

Disposing of radioactive wastes at a hazardous waste facility, or a solid-waste landfill, also circumvents proper public oversight. Because RCRA permitting does not contemplate disposal of radioactive wastes from industrial facilities, no prior notice is provided to the public that radioactive byproduct materials could be disposed at such facilities. The public therefore has no opportunity to assess radioactive waste disposal at RCRA facilities. This was a central issue for the Safety-Kleen site, particularly following the heated debate over the proposed site of a low-level radioactive waste facility in Ward Valley, California. By avoiding any opportunity for public or State review and comment, the disposal of radioactive wastes at the Safety-Kleen facility circumvented NRC-mandated public participation that is required for all properly licensed radioactive waste disposal facilities.

Although it is NRDC’s position that the AEA clearly and unequivocally applies to all radioactive byproduct material, regardless of when it was generated, recent NRC and USACE actions demonstrate that further clarification by Congress of the applicability of NRC regulatory authority is necessary to safeguard the public and environment. Congressional intervention is of particular importance in this case because opportunities for court actions are limited under both Superfund and the AEA. NRDC requests that Congress add language to the AEA further clarifying that UMTRCA applies to both pre- and post-1978 radioactive byproduct material.

II. PROPOSED AMENDMENT TO SUPERFUND IN H.R. 2531

The proposed amendments in H.R. 2531, Section 207, would preclude initiating Superfund cleanup actions at NRC-licensed facilities closed pursuant to NRC’s License Termination Rule, 10 C.F.R. Subpart E. More specifically, the amendments propose two important changes: (1) releases of source, special nuclear, or byproduct material, as defined by the AEA, from a facility properly closed pursuant to NRC regulations are defined as “federally permitted releases”; and (2) administrative or judicial actions may not be commenced under Superfund with respect to any source, special nuclear, or byproduct material subject to NRC decontamination standards. Remediating environmental releases from properly closed NRC-licensed facilities therefore could only be initiated by NRC pursuant to its license termination regulations.

The NRC License Termination Rule permits additional cleanup to be required “only if, based on new information, [NRC] determines that criteria of this subpart were not met and residual radioactivity remaining at the site could result in a significant threat to public health and safety.” 10 C.F.R. § 20.1401(c). The NRC regulations do not provide for public involvement, prescribe any process that must be followed to develop a cleanup plan, nor require financial assurances to ensure that fa-

⁶Resolution Relating to Regulation of 11(e)(2) Radioactive Material, and the Transfer of the Formerly Utilized Sites Remedial Action Program (FUSRAP) to the U.S. Army Corps of Engineers (May 20, 1998).

cility owners will have the resources to undertake post-closure cleanup actions. Although NRC acknowledges the importance of and requires that financial resources be set aside for long-term monitoring and maintenance at facilities where institutional controls are necessary, 10 C.F.R. § 20.1403(c), it has not taken any measures to ensure that funding will be available for post-closure cleanup actions.

NRC has premised its regulations on the belief that environmental releases from formerly licensed facilities will rarely rise to a level that threatens public health. 62 Fed. Reg. 39081. The NRC regulations therefore establish a presumption against further cleanup, unless a significant threat to public health exists; in other words, unless an environmental release that would typically be actionable under Superfund exists. Yet, NRC has not established any of the mechanisms for undertaking a cleanup that are provided for in Superfund. The NRC regulations say little or nothing about the circumstance requiring a cleanup action or how it would proceed.

Superfund contains numerous mechanisms for undertaking cleanup actions to address significant environmental releases. Superfund is structured to ensure that environmental releases are effectively remediated in a timely manner, that resources are available to permit a cleanup to proceed, that affected communities are consulted, and that liability is reasonably apportioned.

While the issues that typically complicate cleanup actions under Superfund may not apply in the near term, as ownership and responsibility is unlikely to be disputed, this is not likely to continue for the indefinite future. Unanticipated factors (e.g., failure of institutional controls, changes in land use) likely to cause significant releases at closed facilities are more likely to manifest themselves in the future, when ownership and liability issues are no longer clear. The analyses that support closure plans at NRC sites are based on assessing risks over a 1000-year period, which implies that long-term impacts from NRC-licensed sites are important. However, such estimates become more uncertain the further out in time they are extended. Accordingly, future risks of environmental releases therefore cannot be accurately predicted.

There is no reason to exempt facilities that have been closed pursuant to NRC regulations from Superfund, particularly when NRC has not instituted any measures to ensure that post-closure cleanups can be effectively implemented. By its very nature, Superfund is structured to address major environmental releases; accordingly, there is no danger that it could be used to override NRC license termination regulations. Further, according to NRC, the potential for a major release occurring after a licensed facility is closed is very low; it would be the rare exception. It is under just such circumstances that the well-developed mechanisms written into Superfund will be most needed. NRDC therefore urges the Committee to reject the proposed amendments to Superfund in H.R. 2531.

Mr. BARTON. Thank you, Mr. Adelman. The Chair would recognize Mr. Hall for the first 5 minutes of questions.

Mr. HALL. Mr. Chairman, ranking member Dingell has on the 12th of July sent a letter to Chairman Dicus, and I would like unanimous consent to put this in record.

Mr. BARTON. Without objection, so ordered.
[The information referred to follows:]

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON COMMERCE
WASHINGTON, DC 20515-6115
July 12, 1999

The Honorable GRETA JOY DICUS
Chairman
Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, Maryland 20852

DEAR CHAIRMAN DICUS: I am writing in regard to the Nuclear Regulatory Commission's (NRC) regulation of byproduct materials under Section 11(e)(2) of the Atomic Energy Act. In particular, I am concerned about the NRC's regulation of disposal of wastes collected under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

I understand that the NRC recently determined that waste from the FUSRAP program generated prior to 1978 is not subject to regulation under Section 11(e)(2). Rather, NRC has determined that such waste may be sent to disposal sites regu-

lated under the Resource Conservation and Recovery Act (RCRA) rather than to disposal sites regulated by the NRC. This raises a number of serious questions:

(1) How will this action improve protection of the public health and the environment?

(2) Please provide copies of the studies NRC used in making its health and safety determinations.

(3) What are the qualitative differences in the radioactive constituents of pre- and post-1978 Section 11(e)(2) by-product material that compel NRC to require two distinct disposal standards?

(4) Please detail the differences between NRC requirements in radioactive waste disposal and disposal under RCRA, specifically:

a. What controls or protections exist at RCRA landfills that ensure the protection of public health, safety and the environment from radioactive byproduct materials disposed at such facilities?

b. What protections are in place to ensure worker health and safety from the risks of exposure to radioactivity at RCRA landfills that have accepted Section 11(e)(2) byproduct material for disposal from the Army Corps of Engineers under the FUSRAP program?

c. Do RCRA sites require a performance assessment to demonstrate long-term protectiveness for the disposal of radionuclides?

d. What type of groundwater modeling is required of RCRA sites to ensure protection of groundwater quality for at least 1,000 years?

e. What type of public involvement have RCRA sites provided to allow for public input to allow the disposal of radioactive waste in facilities that have not been permitted or designed for the disposal of Section 11(e)(2) byproduct material?

(5) Overall, which sites are more protective of public health, safety and the environment relative to the disposal of radioactive byproduct wastes: RCRA landfills or NRC-regulated and licensed disposal facilities?

(6) In a letter dated March 26, 1999, NRC's Office of Nuclear Material Safety and Safeguards concluded that a waiver under the Comprehensive Environmental Response, Cleanup, and Liability Act of 1980 (CERCLA) does not apply to off-site FUSRAP disposal activities. What steps has the Commission taken to regulate off-site handling and disposal of Section 11(e)(2) byproduct material?

(7) Does NRC require additional Congressional direction or authority to regulate pre-1978 Section 11(e)(2) byproduct material?

Please provide responses to these questions no later than Thursday, July 22, 1999.

Should you have any questions regarding this request, please contact me or have your staff contact Mr. Rick Kessler at (202) 226-3400. Thank you in advance for your prompt attention to this matter.

Sincerely,

JOHN D. DINGELL
Ranking Member

cc: The Honorable Tom Bliley
The Honorable Joe Barton
The Honorable Ralph M. Hall

Mr. BARTON. Have we—have the majority staff seen this letter?

Mr. HALL. I don't.

Mr. BARTON. Have you seen it? Okay.

Do you want to tell the people what is in the letter, or do you just want to put it in the record?

Mr. HALL. Well, I thought if I put it in the record, I would have more time to read it.

Mr. BARTON. Oh, okay. All right.

Mr. HALL. Whatever. Mr. Adelman—I was just giving you a short answer, no, I will tell them if you want me to.

Mr. BARTON. No, you—go ahead.

Mr. HALL. Mr. Adelman, NRC has determined that FUSRAP waste might be sent to some disposal sites regulated under the RCRA rather than the disposal sites regulated by the NRC. You are aware of that, are not you?

Mr. ADELMAN. Yes, sir.

Mr. HALL. And I think that raises some questions, and I would be interested in what your views are on it. Do you think this action improves the protection of public health and the environment or what effect would this action have on it?

Mr. ADELMAN. The proposed—or the ongoing action represents an arbitrary distinction between the same types of materials—a material that is currently being disposed of in licensed facilities is the same that they are proposing to dispose of at the RCRA facilities. So, it is arbitrary in that sense, and because RCRA facilities do not have the same sorts of regulatory requirements, the licensed facility represents an incremental erosion of the standards that apply to these materials.

Another important point is that RCRA facilities are designated to dispose of hazardous constituents. And radioactive—radiological contaminants would raise fundamentally different issues. And sites containing hazardous materials have different monitoring and containment requirements. Their—the health and safety regulations applying to hazardous waste facilities do not necessarily include the risk associated with radiological contaminants. And then the groundwater concerns that both the EPA and I have raised are also significant considerations as well.

Mr. HALL. I'm going to wait and have to read that again. I see it in the record.

You are aware of the fact that you have two distinct disposal standards. What are the differences in the radioactive constituents of pre- and post-1978 Section 11(e), subsection 2, byproduct material that warrants having this many—having two—having more than one?

Mr. ADELMAN. The only distinction is the date on which the material was generated.

Mr. HALL. Now, say that again?

Mr. ADELMAN. Unless the byproduct material is going to change from site to site, so there is not a—necessarily a consistency between material that was generated pre-1978 when the UMTRCA legislation was passed versus post-1978. So there is not a rational basis to distinguish between the two types of material.

Mr. HALL. And your answer could have been none?

Mr. ADELMAN. That is right.

Mr. HALL. Instead of the long answer you gave me?

Mr. ADELMAN. That is correct.

Mr. HALL. Then why have two disposal standards?

Mr. ADELMAN. I do not. There is no reason to have two—

Mr. HALL. There is no reason for them?

Mr. ADELMAN. Disposal standards.

Mr. HALL. What controls or protections exist at the RCRA landfills that ensures the protection of public health, safety, and environment from radioactive byproduct materials disposed at such facilities? What protects the public there?

Mr. ADELMAN. Well, there are protective measures to contain hazardous waste constituents, but there are no specific standards dedicated or targeted at radiological contaminants. And because, in particular, radiological contaminants are long-lived, there is serious concerns about the ability of these facilities to contain those.

Mr. HALL. And your answer there would be, if we shortened it down, would be almost none, right?

Mr. ADELMAN. Right.

Mr. HALL. I think I have asked all the questions I want. Thank you, Mr. Chairman. I yield back my time.

Mr. BARTON. Thank you, Mr. Hall. The Chair recognizes Mr. Burr for 5 minutes.

Mr. BURR. I thank the chairman. Could I request that Mr. Hall answer my questions for me?

I might understand them better as well.

Mr. BARTON. Get a lot of questions answered, wouldn't we?

Mr. HALL. Mr. Adelman may be testifying by the word up here. He may be being paid by the word. I do not know.

Mr. BURR. Clearly, the same accusations could be made about us?

Mr. HALL. Yes, right.

Mr. BURR. Let me ask you, Mr. Beedle, I think you understand—we have talked about this 10 percent of users fees that go obviously to things that we do not think they are in the spirit of how that user fee should be used. But when we look at the solution, which would be a change, of possible general revenue appropriations or some change from where we are today. I think you understand how difficult that is going to be to get to. But clearly, it is a change in the right direction, we would probably agree.

Do you have any suggestions as to how we get there?

Mr. BEEDLE. Well, we have had this as an issue for a number of years. You may recall that when the Omnibus Reconciliation process was started that the objective was to try and balance the budget, and this was one of those efforts. And we probably would agree that, from a national priorities point of view, that was a wise decision on the part of the Congress.

But now that we are at the point where we do have a balanced budget, we are suggesting that the Congress go back and rethink the wisdom of continuing that process because you do have a situation where each one of our licensees pays something in excess of \$400,000 a year for regulation by the NRC for activities that have absolutely no benefit to the rate payers. So our rate payers are actually paying these fees for the NRC.

The solution? I think somehow you need to recognize that this is a significant inequity in the way the NRC is funded, and we need to approach it. And if we continue to forestall it, you will be having the same discussion today next year.

Mr. BURR. Could we all be comfortable with a phase in in the change?

Mr. BEEDLE. I would say that is certainly better than not addressing it all.

Mr. BURR. And that may, in fact, be what we end up with.

Mr. BEEDLE. Yes.

Mr. BURR. But I think it is important that we at least throw that branch out there and say there is another way. It is a change that is headed in the right direction, and hopefully a permanent live-within-the-spirit of how it was designed, but we may gradually get there, which I think is recognized.

Let me ask you——

Mr. BEEDLE. I think the phased approach would be—would make a great deal of sense. I mean, it is—I can imagine the difficulty of trying to find \$50 million somewhere through general revenues to do that.

Mr. BURR. You heard the exchange earlier between the NRC and EPA. Do they agree or disagree on the issue?

Mr. BEEDLE. Oh, I think they are in violent disagreement. There is philosophically a disagreement within NRC.

Mr. BURR. Is it a question of science, or is it a question of jurisdiction and the policy differences between the two agencies?

Mr. BEEDLE. I think it is a policy issue on the part of EPA.

Mr. BURR. So you do not know of any science that the NRC has neglected?

Mr. BEEDLE. No. We would agree with the NRC in their assessment of what constitutes a reasonable and achievable cleanup standard.

Mr. BURR. Are there real-world situations where utilities have been confronted with the EPA at the eleventh hour, walking in and saying, no, we are in charge of this?

Mr. BEEDLE. No, I think we are in a situation where we are extremely vulnerable. We can find a facility that is cleaned up to the NRC standards, and then the next day we have the very real potential for the EPA to come in and declare it a Superfund site, and have to spend additional funds to cleanup to an NRC—EPA standard.

Mr. BURR. In your estimation, has there been sufficient public-private participation in how we got to that policy?

Mr. BEEDLE. I think there was in the case of the NRC. I mean, there were well over 7,000 respondents to the NRC's public notice of the—of their standard. And, as Commissioner McGaffigan indicated, they have some fairly well educated, well trained people working on that standard. And we find that it makes sense.

Mr. BURR. Do you know any industry individuals that were brought in by the EPA to develop their standard?

Mr. BEEDLE. None. I do not know that there were any. Do not know—do not really have any first-hand knowledge of that.

Mr. BURR. Let me ask you, Mr. Adelman—and I will ask you to comment on the same thing—but I found it in the end of your testimony, or close to the end. Yes, it was the end. You said by its very nature Superfund is structured to address major environmental releases. Accordingly, there is no danger that it could be used to override NRC license termination regulations.

If that is true, what are you worried about?

Mr. ADELMAN. Well, I think what we are worried about are circumstances where there is specific types of releases that impact standards that have been set, for example, under the Safe Drinking Water Act.

Mr. BURR. Do you perceive that this is a difference between two agencies relative to their interpretation of science?

Mr. ADELMAN. I think there are really two issues. I think that there is a definitely a policy element to this. If you look at how hazardous materials have been regulated, and the standards that have been set for them, and compare that to radiological standards, you

find that the standards are more stringent for hazardous constituents.

Mr. BURR. You think we need an NRC?

Mr. ADELMAN. Certainly. I think we need an NRC, but I think we also need an EPA, because it is going to address more specifically environmental concerns.

Mr. BURR. Could the EPA do the NRC's job?

Mr. ADELMAN. I do not think that it's overall jurisdiction encompasses—

Mr. BURR. No, but if we said, we want the EPA to be the regulatory body for nuclear waste, could they do it?

Mr. ADELMAN. I mean, if they develop all of the personnel and additional technical experts to cover it.

Mr. BURR. So the technical expertise and the personnel do not exist today at the EPA for them to pursue a policy that is an overlap to what the NRC is producing.

Mr. ADELMAN. No, I would completely disagree with that.

Mr. BURR. Well, that is what you said, though. You—I asked you—

Mr. ADELMAN. Well, there—

Mr. BURR. I asked you could the EPA fill in for the NRC. And you said if you have the personnel, if you have the technology, if the expertise existed at the EPA, they could do it.

Mr. ADELMAN. If the issue were just environmental releases and evaluating the potential human health and environmental impacts associated with them, clearly EPA could do that job. But NRC's jurisdiction is much broader than that—it is, you know, regulation of specific facilities that EPA currently is not engaged in.

Mr. BARTON. The Chair is really intrigued by this philosophical discussion, but the gentleman's time has expired. I would encourage the two to talk in the hall.

Mr. BURR. The Chair has been very generous in his time, and I appreciate that.

Mr. BARTON. Yes. Before we recognize Mr. Sawyer, we have got another former member of the committee, Mr. Eckart. This must be a pretty high dollar committee hearing. I have never seen two former Congressman standing at the back of the room in any hearing we have done yet this year. So—

Mr. ECKART. We just want to be closest to the door.

Mr. BARTON. Yes, we are duly impressed. I just assumed you all on the same side of whatever issue it is. You are not on the same side?

Mr. ECKART. Well, we will stand closer together so the targeting is easier.

Mr. HALL. Mr. Chairman?

Mr. BARTON. Yes, sir.

Mr. HALL. You have to really check on Mr. Eckart when he reports something to you. I was told one time that he was about to get defeated in his race, and I caught a quick plane up to Cleveland to help him.

Mr. BARTON. Did you campaign for or against him, which was it?

Mr. HALL. And I missed a meeting with him—with him and for him. And he only got 78 percent of the votes.

Mr. BARTON. Well, he probably was at 49 before you arrived.

Mr. HALL. And he did not even reimburse me for my plane ticket.

Mr. BARTON. He will make amends for that. Mr. Sawyer of Ohio is recognized for 5 minutes.

Ms. SAWYER. It is an art form in northeast Ohio, Mr. Chairman.

I—first of all, let me say that I am really impressed at how you moved this hearing along. I—when I left, there was a whole different panel here, and I thought we were still going on with questions.

Mr. BARTON. But everybody left. That was the problem.

Mr. SAWYER. Everybody left, and then they didn't come back, huh?

Mr. BARTON. No.

Mr. SAWYER. And now, did we do opening statements here?

Well, I am very impressed. You guys are good. I apologize for not being here to hear that. When we left, I was asking about—

Mr. BARTON. The gentleman's time is about to expire.

Mr. SAWYER. I was asking about the foreign ownership question, and we talked a little bit about security and economic motivations, but let me just ask about safety questions and exposure to liability. The question when you have got foreign ownership and the ability to access assets in the event of a substantial safety emergency is something to be considered on its face. But when you get into the question of the Price-Andersen caps on liability, at \$100 million; when you begin to go past that in the event of a substantial problem, it seems to me that you run the risk of a domestic affiliate and a foreign parent moving assets from where they might be accessible in the United States to where they might not be accessible elsewhere. Do either of you have a comment on that from the point of view of foreign licensure, or is—or are my concerns misplaced?

Mr. BEEDLE. Well, I think if you go back to the testimony of the NRC, the Commissioner—Commissioner Merrifield pointed out that our fuel processing facilities are foreign-owned, for the most part. I—as a chief nuclear officer, I bought fuel from a foreign manufacturer, components from foreign companies, and I think the foreign ownership question is one that does not make a lot of sense when you compare those things that are owned or controlled by some foreign entity and then a restriction on a power plant operation. It is a commercial operation, and the risk that you may have some difficulty in terms of liability I think is one that is addressed through the licensing process. The NRC provides guarantees that you have adequate funds for decommissioning. The insurance programs that the nuclear utilities participate in are robust and would provide that cover. And I think that the trend that we see today is that foreign ownership would be a partial ownership. You would not have a sole—solely foreign entity owning the facility as you have in case of the ownership of TMI, for example.

So we are—we are confident that this makes sense from a business point of view. An economic point of view is the way the rest of the country operates and the business world.

Mr. SAWYER. Mr. Adelman?

Mr. ADELMAN. I actually do not have a comment on that.

Mr. SAWYER. Thank you, Mr. Chairman.

Mr. BARTON. Is that all your questions?

Mr. SAWYER. I thought I was on the thin ice to begin with?

Mr. BARTON. No, no. Mr. Shimkus, then, would be recognized for 5 minutes.

Mr. SHIMKUS. Thank you.

Mr. BARTON. Before we do that, the Chair would ask unanimous consent that all members that are not present when this hearing concludes, if they have questions that they be allowed to submit them in writing to both panels so that we get a complete record before we go to mark up of the reauthorization bill. Is there objection?

Hearing no objection, so ordered.

Mr. Shimkus, you are recognized for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman. Mr. Beedle, did you tell me prior to the meeting that you are a 1962 grad of the Naval Academy?

Mr. BEEDLE. That's correct, sir.

Mr. SHIMKUS. So the answers, we needed to make sure we review those, Chairman, for sufficiency and completeness.

Mr. BARTON. Now, you are a graduate of West Point, I think?

Mr. SHIMKUS. That is right. That is why I am suspicious of the testimony.

Mr. HALL. You could not get in the Naval Academy?

Mr. SHIMKUS. I can see that is why. The—let me—I do have a question on—can you tell me, Mr. Beedle, on the Agreement States Program can you kind of explain what that is?

Mr. BEEDLE. Well, much of the money that the NRC allocates to the Agreement States is to support them in their regulatory activity through training—a considerable amount of money goes into that. I would guess that that is probably the bulk of it. But they have that obligation to train those—

Mr. SHIMKUS. Do you know of any—and you were here in the other—the hearing, and I asked the question in reference to international-type of agreements. Are you familiar with any of those?

Mr. BEEDLE. Very few of them. The NRC provides a lot of consultation to foreign regulatory bodies. There is a International Regulators Association that undoubtedly consumes some funding. I think that is probably the two big components of that cost.

Mr. SHIMKUS. Mr. Adelman, I have a question. The Natural Resource Defense Council, what is their agreed upon millirem standard for safety?

Mr. ADELMAN. I am not sure we have an explicit position on that, but it would be, you know, in the 10 to 15 millirem area.

Mr. SHIMKUS. And do you have science to back up that standard?

Mr. ADELMAN. We certainly reviewed—we do not do independent analysis ourselves, but we certainly reviewed EPA data.

Mr. SHIMKUS. So your standards are based upon the same EPA that does not have enough professionals to do the requirements in search of the NRC with the billions of Ph.D.s that they have there?

Mr. ADELMAN. We think that the EPA personnel are well qualified to address these issues.

Mr. SHIMKUS. Are you saying that the NRC's standards of 25 millirem is unsafe?

Mr. ADELMAN. I think that we have concerns about that, but the license termination rule does not just address a 25 millirem standard. It also establishes a 100, and even in some cases 500 millirem

standard, so, you know, it is the license termination rule as a whole that we have concerns about; that I think raises the issues that EPA has raised in front of you.

Mr. SHIMKUS. Mr. Beedle, what is your comments in reference to the millirem standards and the NRC's technical expertise?

Mr. BEEDLE. Well, we are satisfied that the NRC has gone about the very deliberate process of reviewing that cleanup standard. They have collected scientific consensus on the standard, and, as I indicated earlier, some 7,000 respondents to the proposed rule on that. So I am satisfied that the technical expertise that has been brought to bear to provide an adequate standard for protection of the public. And the concern that the industry has is that we end up in a dual regulatory situation where I need to worry about cleanup, an NRC standard, and then a follow-up standard published by an agency that has gone about it in a process that is less than open, from our point of view.

Mr. SHIMKUS. Let me ask a final question. Do either of you know of another country that has a higher standard than the 25 millirem standard?

Mr. BEEDLE. I do not know of any.

Mr. ADELMAN. Off the top of my head, I do not know of any.

Mr. SHIMKUS. Thank you. Mr. Chairman, I yield back my time.

Mr. BARTON. The—I am going to submit my questions for the record in the interest of time. And since Mr. Hall said he would submit his questions to the first panel in writing, I think that balances it.

Before we adjourn, though, since we know that Mr. Beedle went to the Naval Academy, it would be unfair if we did not ask Mr. Adelman where you graduated from. Where is your academic training?

Mr. ADELMAN. At Stanford and Reed College.

Mr. BARTON. Stanford and Reed College. Okay.

Gentleman, I want to thank for your presence, and this hearing is adjourned.

Mr. BEEDLE. Could I add, beat Army, sir?

Mr. BARTON. Beg your pardon?

Mr. BEEDLE. Beat Army.

Mr. BARTON. Oh, beat Army. I am not going to get into that.

[Whereupon, at 4:31 p.m., the subcommittee was adjourned.]

[Additional material submitted for the record follows:]

NUCLEAR REGULATORY COMMISSION
September 10, 1999

The Honorable JOE BARTON, *Chairman*
Subcommittee on Energy and Power
Committee on Commerce
United States House of Representatives
Washington, D.C. 20515

DEAR MR. CHAIRMAN: Thank you for the opportunity to appear before your Subcommittee on July 21, 1999, to discuss the important issues regarding authorization of the Nuclear Regulatory Commission. We appreciate the opportunity to provide input on H.R. 2531.

I am enclosing the NRC responses to post-hearing questions. Please contact me if I can be of further assistance.

Sincerely,

GRETA JOY DICUS

Enclosure: As Stated

cc: Representative Ralph M. Hall

Question 1. A recent NRC press release states that the "security program will be incorporated into the NRC's baseline inspection program when it is fully implemented early next year." My understanding was that the program is suspended as part of the baseline inspections until a new rule-making is completed.

(A) Is that correct?

Answer. No, a security inspection program similar to the NRC's long standing regional inspection program continues to be an integral part of the baseline inspection program.

The ongoing OSRE inspections will continue to require licensees to demonstrate the response capability of their security organizations, including force-on-force exercises, as planned. At present, the last OSRE is scheduled for May 2000. The staff, with stakeholder involvement, is exploring options to continue the evaluation of licensee demonstration of contingency response capabilities during the period between completion of the OSREs and issuance of the final rule, whenever that occurs, and plans to forward its recommendation on these options to the Commission in September 1999. This transition plan will ensure force-on-force exercises continue following May 2000 through the completion of the rulemaking.

In a letter dated August 31, 1999, the Nuclear Energy Institute (NEI) commented on the new rulemaking you mentioned. In its letter, NEI informed the Commission that the industry is preparing a guidance document for a pilot program that could be implemented in mid-2000 when acceptable to both the NRC staff and the industry. Key elements of the NEI pilot program guidance include identifying target sets based on a goal of preventing a radiological release that exceeded 10 CFR Part 100 criteria, force-on-force drills and exercises, tools for evaluating the effectiveness of drills and exercises, and a process for correcting deficiencies. The Commission intends to consider the viability of the industry proposal within the framework of the staff's September 1999 recommendation to the Commission.

Question 1. A recent NRC press release states that the "security program will be incorporated into the NRC's baseline inspection program when it is fully implemented early next year." My understanding was that the program is suspended as part of the baseline inspections until a new rule-making is completed.

(B) When do you expect the rule to be finished?

Answer. The NRC staff has proposed—and the Commission has approved—an aggressive rulemaking schedule to amend Part 73 to require periodic contingency be an integral part of the baseline inspection program. The rulemaking is currently expected to follow this schedule:

September 17, 1999—rulemaking plan to Commission
 March 31, 2000—proposed rulemaking to Commission
 May 2000—60 day public comment period
 December 1, 2000—final rulemaking to Commission
 May 1, 2001—final rule published

However, at a public meeting on August 11, 1999, there was significant stakeholder comment on the need for a more comprehensive Part 73 rulemaking. If the Commission agrees to broaden the rulemaking, this aggressive schedule could be delayed. Furthermore, as mentioned in the response to the previous question, the industry has proposed a goal of developing, over a two-year period, a broader rule change and supporting industry implementing guidance.

Question 1. A recent NRC press release states that the "security program will be incorporated into the NRC's baseline inspection program when it is fully implemented early next year." My understanding was that the program is suspended as part of the baseline inspections until a new rule-making is completed.

(C) How long does rulemaking usually take?

Answer. In recent years, many rulemakings have taken approximately 24 months from approval of a rulemaking plan by the Commission. However, many high priority rules have been adopted on a faster schedule. Our August 27, 1999 letter to Congressman Markey and the response to 1(B) discuss this proposed rulemaking schedule.

Question 2. (A) Will you commit to including force-on-force drills in the baseline inspections when they start, whether or not the rule-making is finished?

Answer. Specific commitments at this time would be premature since the Commission has not reviewed the staff's proposal. The staff will provide options for Commission review in September 1999. NRC inspection of license-conducted force-on-force exercises is currently under discussion between NRC and its stakeholders, including the recent industry proposal to prepare a guidance document for a pilot program that includes force-on-force drills which, if found acceptable to the NRC and the industry, could be implemented in mid-2000. Whether force-on-force drills are

required under the auspices of the baseline inspection program or as a continuation of the current approach to OSRE is among the options being evaluated by the staff at this time.

Question 2. (B) Will you commit to ensuring there is not a gap between the end of the OSRE drills next spring and the inclusion of drills in the baseline inspection either by continuing the OSRE program or beginning the baseline inspection drills?

Answer. Specific commitments at this time would be premature since the Commission has not reviewed the staff's proposal. The staff is providing options for Commission review by September 1999 as discussed in our responses to 1 (A) and 2 (A).

Question 2. (C) Does the NRC need new legislation in order to enable you to require licensees to conduct these drills right now?

Answer. No, the NRC does not need new legislation in this area. Under the Atomic Energy Act of 1954, as amended (AEA), NRC has ample authority to regulate the operation of nuclear power reactors to promote common defense and security and to protect health or minimize danger to life or property. NRC exercises this authority by issuing licenses, conditions to licenses, and rules/regulations and orders. If it becomes necessary to provide NRC with reasonable assurance of adequate protection of public health and safety or common defense and security, there is no dispute that NRC has the authority under the AEA to require licensees to conduct safeguards performance exercises. However, in order to impose an enforceable requirement to conduct these exercises, NRC must issue an order, license condition, or regulation. The NRC currently believes that the proper method of implementing that authority is through the use of regulations similar to the method used by the Office of Nuclear Materials Safety and Safeguards for requiring the conduct of exercises at fuel facilities (10 CFR 73.46).

Question 3. Currently the OSRE exercises are conducted under the supervision of the NRC, with NRC contractors who are security experts advising the mock adversary force on targets and methods of attack. The modified program would be run by the licensees.

(A) Will the licensees determine how future drills are run, and will plant security forces know what targets will be attacked?

Answer. Contrary to the implications of the question, OSRE exercises are not supervised or participated in by NRC staff or contractors. The drills and scenarios are established and conducted by the licensees. The NRC and contractors do observe and evaluate the exercises. The NRC comments on the appropriateness of the test and compares NRC's independent target selection against that of the licensee's to determine the adequacy of the exercise. As part of the rulemaking effort, NRC guidance on the implementation of exercises would be published and provide acceptable ways to conduct exercises. This guidance will state that drill participants will not have knowledge of the specific targets to be used in the drill.

Question 3. Currently the OSRE exercises are conducted under the supervision of the NRC, with NRC contractors who are security experts advising the mock adversary force on targets and methods of attack. The modified program would be run by the licensees.

(B) If so, is that a realistic simulation of a terrorist attack?

Answer. Yes, in the modified program, the licensees conduct the drills; therefore, the degree of realism is limited to the licensee's ability to simulate a terrorist attack. As we explained in our response to the previous question, this is how the OSRE program is currently conducted. The need for support by the contractors during the transition period following completion of the OSREs and under the new rule, once completed, will be evaluated at a later date.

Question 4. The press release also says the "NRC will likely continue to use private contractors to assist in its evaluation of the performance of its licensees during drills and exercises" (emphasis added)

(A) Do the current NRC contractors for the OSRE program have security expertise that headquarters staff and regional inspectors do not have?

Answer. Yes, the NRC contractors for the OSRE program have extensive security expertise that headquarters staff and regional inspectors do not have.

Question 4. The press release also says the "NRC will likely continue to use private contractors to assist in its evaluation of the performance of its licensees during drills and exercises" (emphasis added)

(B) Do you intend to continue to use the current contractors or other contractors with equivalent security expertise?

Answer. The staff intends to continue using the current contractor during FY2000. The need for support by the contractors during the transition period following completion of the OSREs and under the new rule, once completed, will be evaluated at a later date.

Question 4. The press release also says the "NRC will likely continue to use private contractors to assist in its evaluation of the performance of its licensees during drills and exercises" (emphasis added)

(C) Will the contractors continue to advise the mock adversaries on how to attack the plants?

Answer. The NRC, through the use of staff and contractors, will continue in its approach of critiquing exercise plans and independent target development to compare licensee targets as part of the process. This also enables the licensee to conduct a more realistic exercise.

Question 5. I understand there has been some controversy over what should be the standard for success in the drills. Licensees are required to protect against "radiological sabotage."

(A) Do you think the drills should test the licensees' ability to protect against core damage or only against major radioactive release to the atmosphere?

Answer. Title 10, *Code of Federal Regulations* (CFR), Section 73.55(a) requires that licensees be able to "protect against the design basis threat of radiological sabotage." Radiological sabotage is defined in Section 73.2 as, "any deliberate act directed against a plant or transport... which could directly or indirectly endanger the public health and safety by exposure to radiation." Therefore, the licensees are required to protect against acts that could endanger the public health and safety.

Part 73 does not define the limits of exposure that are considered dangerous for the public health and safety, although limits of exposure are discussed in various other sections of Title 10 of the CFR. The staff is currently considering how to clarify expectations in Part 73 and better define the term "radiological sabotage," calling on standards also used in other areas of nuclear regulation, including Part 100. The systems and equipment necessary to prevent a radiological release, and therefore subject to protection by security measures, could be dependent on the release definition. During the remaining OSREs, the teams will review this issue as part of their input to the NRC's Safeguards Performance Assessment Task Force.

Question 5. I understand there has been some controversy over what should be the standard for success in the drills. Licensees are required to protect against "radiological sabotage."

(B) In evaluating the drills, do you think it fair to assume that plant operators would act perfectly to prevent radioactive release, or should their performance be tested in the drills?

Answer. NRC would expect operators to respond in accordance with training they have received in dealing with off-normal plant conditions. Operator actions need to be evaluated in as realistic a manner as practicable to simulate actual conditions. Operators are already routinely examined with respect to their response to off-normal plant conditions, regardless of the source of the condition. An important element of the proposed rulemaking and related guidance will be how to credit operator actions during an attempt at radiological sabotage. The remaining OSREs will examine the integration of the overall actions by operations and security organizations in preventing radiological sabotage.

Question 6. I would like to thank you for your recent letter responding to my letter on the Sunshine Act rules. In the letter you suggest that the Commission is "legally prohibited" from including under the Sunshine Act rules gatherings that do not meet the Supreme Court's narrow definition of a "meeting."

(A) Do you think the NRC's old rules are illegal and have been for the last 15 years since the Court's ruling?

Answer. The Commission has never asserted that its former Sunshine Act rules were "illegal." Rather, it said that they did not follow sufficiently closely the intent of Congress, as explicated by the Supreme Court in *ITT World Communications v. FCC*, 466 U.S. 463 (1984). As the American Bar Association pointed out in its report on the Sunshine Act, Congress can be presumed to have had a reason for amending the proposed Act to give federal agencies latitude to conduct many types of discussions outside the context of Sunshine Act "meetings." That reason was that Congress saw a positive value in such discussions and expected that federal agencies would hold them.

In its letter to you of July 19, 1999, the Commission observed in a footnote that one decision of the United States Court of Appeals for the District of Columbia Circuit held that a federal agency acted beyond the scope of its authority when it promulgated a broader definition of "meetings" in its regulations than was contained in the Sunshine Act. *WATCH v. FCC*, 665 F.2d 1264 (D.C. Cir. 1981). One can only speculate as to whether a similar challenge to the NRC's original Sunshine Act regulations would have yielded a similar result.

Question 6. (B) Is there anything in the Sunshine Act or in other laws that actually prevents Commission gatherings from being open to the public?

Answer. There may be a number of areas where the Commission could be legally constrained from holding a discussion in public, *e.g.*, national security information or information subject to the Privacy Act.

Question 6. (C) Is the Commission legally allowed to keep transcripts or recordings of all gatherings of a majority of the Commission?

Answer. We know of no barrier to the Commission's keeping transcripts or recordings of any discussions among any number of Commissioners.

Question 7. The revised rule is intended to foster general discussions by the Commission that do not now take place by allowing them to be secret.

(A) Why can't the Commission hold such discussions in public?

Answer. There is no legal barrier *per se* to such discussions. That does not mean, however, that the statute lacks an inhibiting effect. The Commission can only repeat the words of a unanimous Supreme Court in the *ITT* case:

Congress in drafting the Act's definition of "meeting" recognized that the administrative process cannot be conducted entirely in the public eye. "[I]nformal background discussions [that] clarify issues and expose varying views" are a necessary part of an agency's work. [Citation omitted.] The Act's procedural requirements effectively would prevent such discussions and thereby impair normal agency operations without achieving significant public benefit. Section 552b(a)(2) therefore limits the Act's application...

466 U.S. 463, 469-70.

Question 7. (B) Is there anything in the old rules that would prevent this?

Answer. Nothing in the NRC's former Sunshine Act rules would prevent it from holding any discussions it wished to in public, as long as the discussions do not involve information that the Commission is legally constrained from discussing in public.

Question 8. (A) Under the revised rule, could the Commission meet to discuss how easing government regulations could assist the nuclear power industry, and do so without public notice or public participation and without any transcript, tape, or minutes of the meeting?

Answer. The hypothetical topic proposed in the question likely would, under the Commission's revised rules, fall into the category of discussions "sufficiently focused on discrete proposals as to cause or be likely to cause the individual participating members to form reasonably firm positions regarding matters pending or likely to arise before the agency," and thus fall into the category of topics that can be discussed only in "meetings" if three or more Commissioners are present.

Question 8. (B) Could the rules be revised in six months so that no record would be kept that such a meeting took place?

Answer. The question is moot; see (a).

Question 8. (C) If discussion of specific proposals for changing NRC regulations took place at such a meeting, or if the Commission made secret decisions at such a meeting, how would the public find out?

Answer. Again, the question is moot; see (a).

Question 9. Do you think that secret Commission discussions will "enhance public confidence" in the NRC's work? If so, how?

Answer. In its July 1999 Federal Register notice, the Commission addressed this point. It acknowledged the possibility that the NRC's action would diminish public confidence in the Commission, but stated that it believed "that the legal and policy reasons for its action—compliance with the Supreme Court's guidance, and the expected benefits in collegiality and efficiency, make this a desirable course of action, even if—despite the Commission's best efforts to explain its reasoning—some persons misunderstand or disapprove of the Commission's action." The Commission added: "It is also possible that the potential enhancement of collegiality and the potential improvement in Commission decision-making that may result from non-Sunshine Act discussions will ultimately increase the public's confidence in the Commission's actions."

Question 10. I understand that the NRC has recently conducted Fire Protection Functional Inspections at several plants. Could you please summarize results of these inspections and identify the frequency of significant weaknesses found?

Answer. The NRC performed three full-scope fire protection functional inspections (FPFI); one at River Bend Station, one at Susquehanna, and one at St Lucie. In addition, one reduced-scope FPFI, using inspection techniques developed for the full-scope inspections, was conducted on a licensee's fire protection program self-assessment at Prairie Island. At each inspection the staff found deficiencies in the licensee's program implementation which could result in weakening fire protection defense in depth. However, the NRC also found that licensee self-assessments using the fire protection inspection and assessment guidance established by the FPFI program were capable of identifying programmatic strengths and weaknesses.

Examples of the deficiencies found in the inspections include such things as control of transient combustibles, weak fire brigade performance, compliance with design codes and standards for fire protection systems, and weaknesses in post-fire safe shutdown analysis and implementation. In each case, compensatory measures such as interim post-fire safe shutdown contingency plans or fire watches were put in place to mitigate the possible reduction in defense in depth while corrective actions were being implemented. These fire protection compensatory measures are to be maintained in effect until the inspection findings are resolved and/or final corrective actions are taken by the licensee organization.

After the pilot FPFIs, the NRC staff conducted a public workshop with the reactor licensees to discuss the results of the FPFIs and the lessons learned from the FPMI program. One of the results of the FPMI program was renewed industry attention to nuclear power plant fire safety. As examples, the Nuclear Energy Institute is developing performance indicators for reactor fire protection and new procedures that will help the licensees conduct self-assessments of their fire protection programs. In addition, some licensees, including those that were not subject to FPFIs, have made voluntary changes to their fire protection programs and have conducted self-assessments in response to the lessons learned from the FPMI program. As a result of the FPMI program, the NRC staff concluded that it should continue to monitor licensee performance in this area and included reactor fire protection in the new reactor oversight and inspection program. This new program includes new risk-informed fire protection inspection procedures and a newly-developed tool for assessing the risk and safety significance of fire protection deficiencies. The staff believes that the expected increase in licensee self-assessments, coupled with the more frequent and robust NRC fire protection inspections that it will conduct under the new reactor oversight and inspection program, will ensure an adequate level of fire protection at all nuclear power plants.

Additional/Background Information.

Fire protection program implementation findings are documented in the following inspection reports:

- River Bend FPMI—NRC Inspection Report Number 50-458/97-201 dated March 20, 1998.
- Susquehanna FPMI—NRC Inspection Report Numbers 50-387/97-201 and 50-388/97-201 dated May 13, 1998.
- St. Lucie FPMI—NRC Inspection Report Numbers 50-355/98-201 and 50-389/98-201 dated July 9, 1998.
- Prairie Island FPMI—NRC Inspection Report Numbers 50-282/98-016 and 50-306/98-016 dated October 9, 1998.

Question 11. I understand that plants have recently done assessments of the risk of fire-induced core damage.

(A) What is the range of core damage frequency estimated at the different plants?

Answer. The values reported by licensees for fire induced core damage frequency (CDF) range from 2×10^{-7} to 4×10^{-4} per reactor year.

Background/Additional Information.

Quad Cities initially reported a fire induced CDF of 5×10^{-3} per reactor year in their original submittal dated February 17, 1997. The reported value in its revised submittal dated May 27, 1999, is 6×10^{-5} per reactor year. The revised submittal is currently under review by the staff.

Question 11. I understand that plants have recently done assessments of the risk of fire-induced core damage.

(B) Is most of the range due to plant differences or to differences in risk assessment methods and assumptions?

Answer. The vintage and layout of a given plant contribute to the differences to a certain extent; however, some of the variability can be attributed to differences in methods and assumptions employed in the analysis. The staff is currently working on identifying, analyzing and reducing sources of variability in fire risk assessments.

Background/Additional Information.

Although different methods and assumptions can result in significant variability in the fire induced core damage frequency (CDF) estimates, the relative ranking of fire scenarios and dominant fire areas at a plant are based on relative values of CDF and not the absolute values. The major objective of the Individual Plant Examination of External Events (IPEEE) program was not to develop accurate CDF estimates. Rather, the major objectives were for licensees to: (1) Develop an appreciation of severe accident behavior, (2) Understand the most likely severe accident se-

quences that could occur at the plant, (3) Gain a qualitative understanding of the overall likelihood of core damage, and (4) Reduce, if necessary, the overall likelihood of core damage by modifying, where appropriate, hardware and procedures that would help prevent or mitigate severe accidents.

Question 12. Given the apparent lack of quality control, how can the NRC implement a risk-informed inspection program for fire protection next year when standards for fire risk assessments will not be available until some years later?

Answer. Currently available risk information (generic and plant-specific) and risk assessment techniques (e.g., those used by the licensees to perform the fire analyses of the individual plant examination of external events (IPEEE)) and risk assessments (e.g., the results of the plant-specific IPEEE fire analyses) are adequate to support risk-informed reactor fire protection inspections to a limited extent. In the future, as risk assessment methods improve and mature, and additional experience is gained with their application, additional risk insights will be incorporated into the NRC fire protection inspection program.

The NRC's new reactor inspection and oversight program includes a baseline fire protection inspection program that is based on long standing fire protection and post-fire safe shutdown inspection techniques. These techniques include both deterministic and risk assessment techniques designed to ensure that licensees have adequately implemented their fire protection programs and that they provide a sufficient level of fire safety to maintain one train of safe shutdown capability free of fire damage.

During the fire protection functional inspection program, the NRC used fire risk insights from the plant IPEEEs to focus the inspections on those plant areas that present the highest risk from a reactor safety perspective. This same basic approach has been incorporated into the new baseline fire protection inspection program.

In addition, under the new reactor inspection and oversight program, the NRC has developed an inspection finding significance determination process. This process, which includes both deterministic and risk assessment elements, will be used by the NRC and the licensees to evaluate fire protection findings, assess their risk impact, and estimate any potential change in risk they may have on the core damage frequency. Through the implementation of this method, NRC focus can be applied to important fire protection findings and their resolution.

Question 13. The NRC has strict rules regarding drug use and drug testing for personnel at nuclear power plants but only vague guidelines regarding overtime and consequent fatigue, which can cause similar symptoms. As a consequence, it is common for plant personnel to work several 70 hour weeks in succession.

Why does it not make sense to have strict, enforceable rules on working hours, as there are for drugs (and as there are on working hours for airline pilots and truck drivers)?

Answer. By letter dated May 18, 1999, the NRC responded to a previous inquiry by you and Congressmen Dingell and Klink on this matter. In that response we indicated that we would be reassessing the Commission's "Policy on Factors Causing Fatigue of Operating Personnel at Nuclear Power Plants." The reassessment process is expected to provide a basis for making a determination concerning whether the policy should be reaffirmed, revised, or alternative regulatory approaches, such as rulemaking on working hours, should be pursued. The reassessment is scheduled to be completed by the end of FY 2000. (See also the response to Question 14.)

Question 14. Given that the NRC is aware of more than one hundred cases of excess overtime without required approval (and has no records of overtime worked with approval), and given that it is difficult to determine the effect of fatigue on safety incidents, why does the NRC plan not to review licensee use of overtime?

Answer. During the development of the NRC's revised reactor oversight process, the NRC made the decision not to include monitoring of overtime use. This decision was based on the lack of risk significant findings from past inspections and event investigations related to working hours and is consistent with the NRC's effort to focus inspections on risk-significant issues. However, as part of the revised reactor oversight process, if performance indicators and inspection findings indicate problems, licensees are expected to determine the root cause of those problems. If the root cause is in the area of human performance, fatigue is one of the many possible contributing factors. NRC inspections are conducted to assure that licensees are implementing effective corrective action. In addition, and as noted in response to Question 13, the NRC is initiating a reassessment of the policy to ensure that NRC regulatory actions are consistent with the risk-significance of this issue. The results of this reassessment will be considered in making any determination concerning the NRC's inspection program as it relates to use of overtime and potential personnel impairment from fatigue.

Question 15. The Commission recently reversed a decision to provide funding for state stockpiles of potassium iodide (KI), which had been intended to help protect the public in the event of a nuclear accident. According to a June 15, 1999 letter from Chairman Jackson to the Federal Emergency Management Administration (FEMA), the reversal was in part based on a 1980 NRC policy.

(A) Is there any legal barrier to the Commission funding purchases of KI for states that wish to establish stockpiles?

Answer. There is no *per se* legal barrier to the Commission funding the purchase of KI for the states that wish to establish stockpiles. The Commission determined as a policy matter that the NRC will not fund the purchase of KI for the states. This decision is consistent with the Commission's longstanding policy that funding for state and local emergency response measures has been the responsibility of those governments working with the licensees. The Commission believes that the overall cost of KI is minimal when placed in the context of emergency planning.

As a separate matter, the Commission determined as a policy matter that the federal government should fund regional stockpiles of KI. The Commission stated that well placed federal stockpiles, in addition to any state stockpiles, is a measure the federal government should consider. Not every state will elect to have a stockpile (see Answer 16(A)). Because states are not required to stockpile, the NRC believes that regional stockpiles may be a prudent and reasonable approach to making KI available to emergency response officials in the very unlikely event of a severe reactor accident. These regional stockpiles could be used to supplement local stockpiles, or when a state without a stockpile decides to use KI on an ad hoc basis in a nuclear emergency. If Congressionally approved appropriations for NRC funding were sufficient, NRC could consider assisting in the funding of purchasing KI for regional stockpiles.

Question 15 (B). If there are policy barriers, has the NRC reexamined those policies?

Answer. The NRC and FEMA are currently reexamining earlier positions and policies regarding KI. The goal is to identify the options available to the two agencies to make KI available to the states.

Question 16. The Commission, in its reversal, also referred to concerns about cost.

(A) How much money would it cost to fund the purchase of KI for all states?

Answer. In Commission paper SECY-98-264 dated November 10, 1998, the estimated cost of purchasing a supply of KI was between \$117K, for two to three states, and \$3.25M for all states with nuclear power plants. These estimates do not include refurbishing every seven years, as would be required due to its shelf life. The cost for funding the purchase of KI depends on the current market price of KI tablets and the number of states that would request state stockpiles. In November 1998, the staff reported an increase in the price of KI tablets.

The Commission considered the cost to fund all state stockpiles, which, as indicated above, would be about \$3.25M in a given year, with replacements necessary every seven years, in the context of the overall budget. The NRC's budget, adjusted for inflation, is the lowest it has been in more than 20 years. The resources to fund state stockpiles are not budgeted and would have to be reprogrammed from existing agency programs. As you know, the House is recommending a \$10M reduction in the appropriation for FY2000 recommended by the President. See H.R. 2605, Title IV. For these reasons, the Commission's concerns about costs were considered in the context of how best to spend limited NRC funds to produce the most comprehensive and effective national KI program. (See Answer 15).

Question 16 (B) How much money has the NRC spent studying the KI issue since 1989?

Answer. The total amount of NRC spending on the KI issue exceeds \$2.6M for last 10 years (1989—1999), based on a conservative estimation in two components:

- (1) Approximately 20 FTEs (\$2M) of NRC staff was expended during the period of 10 years, with an additional \$240K for Rulemaking and support work from October 1998 to August 11, 1999.
- (2) \$300K was used for a contractor's fee for study and publication of NUREG/CR-6310, on "An Analysis of Potassium Iodide (KI) Prophylaxis for the General Public in the Event of a Nuclear Accident," which was issued in 1995. The additional NRC staff support for the NUREG/CR-6310 was 1 FTE (\$100K) for FY91-96.

This question, in the context of the series of questions on this issue seems to suggest that the NRC could have better spent the resources it has used over the past 10 years researching and developing a KI policy on funding state KI stockpiles. Funding for researching and developing a KI policy is a separate matter from funding state stockpiles.

Just as the NRC was required to do in the past, the NRC will need to dedicate future resources to developing and finalizing changes to NRC regulations and making final changes to a national policy on KI. Specifically, funds will need to be expended to complete the NRC rulemaking requiring licensees to consider using KI as part of their emergency planning, and to continue working with FEMA and other agencies represented on the Federal Radiological Preparedness Coordinating Committee (FRPCC), to re-evaluate the Federal policy on KI. These resource expenditures are over and above the additional cost of funding state stockpiles.

Question 17. The Commission now supports regional KI stockpiles. However, the Director of the (FEMA) stated in a April 29, 1999 letter to the NRC that such stockpiles would "complicate, not strengthen radiological emergency preparedness." The Commission, in its dispute with the EPA over radiation release standards, emphasized its superior expertise.

(A) How many emergency preparedness experts does the NRC have on staff, and how many does FEMA have on staff?

Answer. NRC has about 40 specialists for emergency preparedness and response in its headquarters and four regions including a Regional State Liaison Officer in each region who serves as the NRC representative on the FEMA Regional Assistance Committees that assist state and local government officials in emergency planning. In addition, NRC has a significant number of nuclear and radiological health scientists, reactor and radiological inspectors, and other technical specialists on its staff. FEMA has approximately 90 specialists in its radiological emergency preparedness program in headquarters and 9 regions with nuclear power plants.

NRC and FEMA have been working together since the TMI accident in emergency planning, exercises, and response and have developed complementary roles and responsibilities. The roles and responsibilities of the NRC and FEMA for radiological emergency preparedness are defined in NRC and FEMA regulations (10 CFR 50 and 44 CFR 350, respectively) and in a Memorandum of Understanding between the two agencies. The NRC is responsible for making radiological health and safety decisions with regard to the overall status of emergency preparedness, and for reactor licensee oversight and response to radiological events onsite and within the physical and radiological boundaries of the reactor facility. FEMA provides support functions to NRC during emergency situations and is responsible for offsite coordination of emergency management with state and local governments in the jurisdictions surrounding the reactor facility. NRC has significant resources and expertise in both technical and radiological areas to deal with reactor operations and events. FEMA provides specialties dealing with emergency management and associated logistics, particularly, for coordination with state and local governments and general population.

The Commission has directed the NRC staff to work with FEMA to establish and resolve an appropriate policy on KI use and stockpile issues.

Question 17. (B) Why do you dispute FEMA's conclusions regarding KI stockpiles?

Answer. The NRC and FEMA are in agreement on many aspects of the KI issue. On June 14, the Commission published a proposed rule requiring licensees to consider, as part of their emergency planning, the prophylactic use of KI as a supplement to evacuation and sheltering. See Proposed Rule, 64 Fed. Reg. 31,737. Both the NRC and FEMA agree that the states will make the final decision whether to include KI for the general public in their emergency preparedness (EP) programs. The Commission believes that the overall cost of KI is minimal when placed in the context of emergency planning.

However, as we state in response to Question 15(A), because states are not required to stockpile, the NRC believes that regional stockpiles may be a prudent and reasonable approach to making KI available to emergency response officials in the very unlikely event of a severe reactor accident that includes a significant early radioiodine component. The NRC is confident, based on a long record of coordination and cooperation between the two agencies, that the NRC and FEMA staffs will successfully resolve the KI stockpile issue.

Question 18. How much radioactive solid materials by volume and by radioactivity have been released or cleared from regulatory control either on a "case-by-case" basis or through other exemption processes?

Answer. The NRC has approved specific releases of solid material on a case-by-case basis from NRC facilities. Over the past year, these releases include an estimated 5000 metric tons of calcium fluoride with a low enriched uranium activity of approximately 3 pCi/g and an estimated 175,280 pounds of calcium fluoride with a natural uranium activity of approximately 7 pCi/g. In both cases, there would be little, if any impact to workers or members of the public.

To put these releases in perspective, the Environmental Protection Agency encourages the recycling of coal ash, with a natural uranium activity that may be an order of magnitude or more higher, in building materials. Naturally occurring radioactive

materials at these or higher levels can also be found in fertilizers and other consumer products.

Question 19. How much NRC resources (budget and staff, including contracts) have been and are projected to be used to issue standards for clearance or release of radioactive material from regulatory control?

Answer. Prior to FY 1999, NRC expended \$2.6 million contract support to develop NUREG-1640, "Radiological Assessments for Clearance of Equipment and Materials from Nuclear Facilities" for use in developing regulations. This report contains the technical basis for calculating doses from release of solid materials.

NRC has budgeted an additional \$6.5 million (30 FTE and \$3.5 million contract support) over the next 3 ° years to develop regulations, if necessary.

Question 20. In an attachment to a May 3, 1999 letter to me, NRC staff noted that "The NRC regulatory oversight and authority does not extend to the U.S. off-site electrical grid system," and that "FERC and NERC have not identified to the NRC the need to keep particular nuclear power plants running during the Y2K transition."

(A) If the NRC's mandate is the public health and safety at nuclear power plants, and no specific need for power has been identified, why does the NRC propose to allow licensee to violate health-based regulations in order to increase stability of the grid?

Answer. The NRC does not propose to allow licensees to violate health-based regulations. If there is a need for power, the NRC proposes to exercise discretion upon balancing the need for power with the public health and safety or common defense and security of not operating against potential radiological or other hazards associated with continued operation. The NRC will exercise discretion only when it is clearly satisfied that safety will not be unacceptably affected by exercising the discretion.

The NRC enforcement policy allows the exercise of enforcement discretion in certain situations to allow continued plant operation when it does not present an undue risk to public health and safety and is in the public interest. This is consistent with NRC's mandate to assure public health and safety.

The following is a summary of the interim enforcement policy published in the Federal Register of Friday, July 30, 1999 (64 Fed. Reg. 41474) that will govern the exercise of enforcement discretion by the NRC staff. The policy would be implemented when licensees of operating nuclear power plants find it necessary to deviate from license conditions, including technical specifications (TSs), in those cases in which Y2K-related complications would otherwise require a plant shutdown that could adversely affect the stability and reliability of the electrical power grid. This policy does not extend to situations in which a licensee may be unable to communicate with the NRC. The policy is effective August 30, 1999 and will remain in effect through January 1, 2001. This policy only applies during Y2K transition or roll-over periods (December 31, 1999, through January 3, 2000; February 28, 2000, through March 1, 2000; and December 30, 2000, through January 1, 2001). During these periods, a licensee may contact the NRC Headquarters Operations Center and seek NRC enforcement discretion with regard to the potential noncompliance with license conditions, including TSs, if the licensee has determined that:

- (a) Complying with license conditions, including TSs, in a Y2K-related situation would require a plant shutdown;
- (b) Continued plant operation is needed to help maintain a reliable and stable grid; and
- (c) Any decrease in safety as a result of continued plant operation is small (considering both risk and deterministic aspects), and reasonable assurance of public health and safety, the environment, and security is maintained with the enforcement discretion.

Licensees are expected to follow the existing guidance as stated in NRC Inspection Manual Part 9900 for Notices of Enforcement Discretion to the maximum extent practicable, particularly regarding a safety determination and notification of NRC. A licensee seeking NRC enforcement discretion must provide a written justification, or in circumstances in which good cause is shown, an oral justification followed as soon as possible by written justification. The justification must document the need and safety basis for the request and provide whatever other information the NRC staff needs to make a decision regarding whether the exercise of discretion is appropriate. *The NRC staff may exercise enforcement discretion on the basis of balancing the public health and safety or common defense and security of not operating against potential radiological or other hazards associated with continued operation, and a determination that safety will not be unacceptably affected by exercising the discretion.* The Director of the Office of Nuclear Reactor Regulation, or designee,

will advise the licensee whether the NRC has approved the licensee's request and, if so, will subsequently confirm the exercise of discretion in writing.

Enforcement discretion will only be exercised if the NRC staff is clearly satisfied that the action is consistent with protecting public health and safety and is warranted in the circumstances presented by the licensee.

Although the NRC's oversight of the electric grid system does not extend into the design and operation of the entire grid, it covers the design and operation of the grid at its interface with the nuclear power plant, since the offsite power system is the primary and preferred source of power for the functioning of structures, systems, and components important to safety.

Although NERC has not identified the need to keep specific nuclear power plants running during Y2K transitions, the need to have many types of generating units and sufficient reserve capacity on line as a precaution against Y2K events has been identified. Should a Y2K problem lead to the common-cause system or device failure and consequent loss of a particular group of generation facilities, such as gas-fueled generation stations, then the remaining mix of generation units and reserves would need to make-up the loss. Nuclear units operating during the Y2K transitions have been factored into the overall strategy for preparing the electric power systems of North America for transition into the year 2000.

Question 20. In an attachment to a May 3, 1999 letter to me, NRC staff noted that "The NRC regulatory oversight and authority does not extend to the U.S. off-site electrical grid system," and that "FERC and NERC have not identified to the NRC the need to keep particular nuclear power plants running during the Y2K transition."

(B) How will the NRC evaluate a licensee's oral justification that is delivered by phone?

Answer. During the Y2K transition, in support of the regulatory response facet of the NRC Y2K Contingency Plan, the appropriate NRC staff will be available at the NRC Headquarters Operation Center, prepared to process enforcement discretion requests related to the Y2K problem. As stated in the summary of the interim enforcement policy above, an oral justification supporting the licensee request for an enforcement discretion must be followed by a written justification. Based on the staff's evaluation of licensee request and justification, the Director of Nuclear Reactor Regulation, or designee, will orally advise the licensee whether the NRC will exercise enforcement discretion, and, if so, will subsequently confirm with a written notice of enforcement discretion. The NRC will also have inspectors at all nuclear power plant sites to provide on-site evaluation of the licensee's requests and justifications.

Question 21. (A) How will cleanups differ, and at what types of sites, if the cleanup standards are those favored by the NRC vs. those proposed by the EPA?

Answer. NRC published a final rule establishing radiological criteria for decommissioning in July 1997. This rule established 25 millirem per year (mrem/yr) from all potential exposure pathways as the acceptable criterion for release of licensed sites for unrestricted use. This dose limit is coupled with the provision that the dose be As Low As is Reasonably Achievable (ALARA). EPA believes that this is not protective of the public health and the environment and stated that 15 mrem/yr from all pathways, with separate limits established for groundwater, is acceptable. The EPA limits on groundwater would be the maximum contaminant levels (MCLs) specified in 40 CFR 141, National Primary Drinking Water Regulations. We note that EPA has not promulgated its 15 mrem/yr standard nor its position that drinking water MCLs should be applied to groundwater by rulemaking. It has done so by guidance documents not subject to an Administrative Procedure Act rulemaking process. A proposed rule was withdrawn by the EPA in December 1996 when it was heavily criticized in the interagency discussions conducted by the OMB's Office of Information and Regulatory Affairs.

The NRC has taken the position (Chairman Jackson letter to Senator John H. Chafee, dated July 16, 1998) that a 25 mrem/yr all-pathways dose criterion provides a dependable, risk-based regulation that is consistent with the recommendations of national and international scientific organizations. The NRC has performed extensive cost-benefit analyses for the application of MCLs for radionuclides in groundwater at, or near, decommissioned sites in the voluminous generic environmental impact statement that accompanied the rule and has found that it is not appropriate. For example, strontium-90 remediation by the pump and treat method to achieve the current EPA MCL of 0.06 mrem/yr would cost \$23 billion/death averted according to the GEIS.

EPA has neither established, nor proposed, a generally applicable environmental standard for the cleanup of radiologically contaminated sites. EPA has provided guidance that an all-pathways standard of 15 mrem/yr, in conjunction with a sepa-

rate groundwater standard based on the maximum contaminant levels (MCLs) established under the Safe Drinking Water Act, should be applied to such sites. Although concentration goals for cleanup are site, radionuclide, and scenario dependent, under NRC regulations, given the same exposure scenario and assumptions, the cleanup of building surfaces, soil and/or groundwater would likely be marginally less by an insignificant amount from the public health and safety perspective. In addition, in these cases, less low-level radioactive waste would be generated. In addition, it is likely that imposition with the MCLs would require more complex final surveys to demonstrate compliance for some sites and potentially great costs for no safety benefit. Indeed, the GEIS found potential net negative health effects for soil cleanup to EPA levels at reference facilities because the marginal safety benefits of removing slightly radioactive soil in large quantities are more than offset by the negative health effects of transporting the material.

In some cases, compliance with the MCLs could require additional groundwater treatment that would not be required under the NRC regulation. Such treatment could significantly delay the completion of decommissioning. In other cases, use of MCLs may be less protective than NRC's all-pathways standard because: the MCLs are based on a modeling approach that has not been updated since 1963 to reflect the current technology on the uptake and potential doses resulting from ingestion of radionuclides through drinking water; MCL requirements do not cover all radionuclides; and the use of MCLs would not provide a consistent risk standard for different radionuclides because the dose¹ at the current MCLs² can range from 0.01 millirem/year for the radionuclide promethium-147 to 30 millirem/year for thorium-232.

Affected facilities would include a cross-section of medical, academic, and industrial facilities; fuel cycle facilities; research reactors; and power reactors.

Question 21. (B) At what fraction of NRC-licensed facilities would the cleanups be affected?

Answer. based on a review of the types of licensees that would be required to submit a decommissioning plan to NRC for approval prior to license termination, approximately 40% of NRC-licensed facilities required to submit a decommissioning plan could be affected. It is estimated that the same percentage of Agreement State facilities would also be affected.

Question 22. (A) Is the dispute between the EPA and the NRC solely that of a 15 mrem standard versus a 25 mrem standard?

Answer. No, the disagreement between the EPA and the NRC is broader than that of a 15 mrem standard versus a 25 mrem standard. The agencies also disagree on the need to demonstrate compliance with standards for individual pathways (e.g., drinking water/groundwater) versus demonstration of compliance with an all-pathways standard.

The NRC has taken the position (Chairman Jackson letter to Senator John H. Chafee, dated July 16, 1998) that 25 mrem/yr all-pathways dose criterion provides a dependable, risk-based regulation that is consistent with the recommendations of national and international scientific organizations. The EPA faults the NRC for not establishing a separate, specific requirement for the groundwater pathway that incorporates requirements to meet specified maximum contaminant levels (MCLs). The NRC has performed extensive cost-benefit analyses for the application of MCLs for radionuclides in groundwater at or near decommissioned sites in the voluminous GEIS that accompanied NRC's rule and has found that it is not appropriate. For example, Sr-90 remediation by the pump and treat method to achieve the current EPA MCL of 0.06 mrem/yr would cost \$23 billion/death averted according to the GEIS. The NRC also believes that in some instances the application of MCLs in groundwater may be less protective than NRC's all-pathways standard because: (1) the MCLs are based on a modeling approach that has not been updated in over 30 years, (2) MCL requirements do not cover all radionuclides, and (3) MCLs do not provide a consistent risk basis for license termination or waste disposal.

The health effects of 15 mrem/yr versus 25 mrem/yr are often characterized by EPA as a 2×10^{-4} (2E-4) difference in lifetime cancer mortality. This is based on a linear no threshold model for estimating the effects of radiation, which national and international advisory bodies recommend be used by regulators. However, these bodies also recognize that applying the model at low doses and low dose rates is a very large extrapolation from where health effects have actually been demonstrated, primarily in Hiroshima and Nagasaki survivors who received more than 20,000 mrem

¹ Calculated using EPA-570/9-76-003, "National Primary Drinking Water Regulations," Appendix B methodology.

² Calculated using EPA-520/1-88-020, "Federal Guidance Report No. 11," Dose Conversion Factors for Ingestion.

in a very short time period. That is why they recommend a 100 mrem/yr public dose limit and the use of constraints on the order of 25-30 mrem/yr within that limit for exposures to any individual source of radioactivity. The advisory bodies recognize the possibility that there is potentially no health benefit in reducing exposures at these very low levels, less than 10% of natural background radiation.

Question 22. (B) What other aspects of the site release standards could be affected by the proposed amendment?

Answer. The proposed amendment would allow licensees to demonstrate compliance with a single all-pathways individual dose limit versus demonstration of compliance with two standards, an all-pathways standard and an individual pathway standard (e.g., groundwater).

Question 22. (C) Do the EPA and the NRC disagree on the degree of risk exposed individuals should undergo, on the risk posed by a given level of radiation, or both?

Answer. The NRC and the EPA generally agree on the risk posed by a given level of radiation and on the maximum total dose to an individual from all sources (i.e., 100 mrem/yr), although the NRC believes that there is great uncertainty of the risk, if any, posed by low levels of radiation. However, the NRC and the EPA disagree on the degree of risk that is acceptable for exposed individuals from a single source. For example, the NRC has proposed an annual, all-pathway, individual dose limit of 25 mrem/yr (1.25×10^{-5} annual risk of fatal cancer) in its proposed regulations for disposal of high-level waste at Yucca Mountain (10 CFR Part 63) and in its final regulation establishing radiological criteria for license termination (10 CFR Part 20 Subpart E). The EPA has commented that NRC's regulation is not protective and recommends the individual dose limit be reduced to 15 mrem/yr (7.5×10^{-6} annual risk of fatal cancer). However, although the risk levels are different, because of the uncertainty in the linear no threshold hypothesis and the risk estimates themselves, the NRC believes that 25 mrem/yr is fully protective of public health and safety.

The EPA and the NRC also disagree on the need for separate requirements (i.e., maximum contaminant levels or MCLs) to protect groundwater. NRC believes that an all-pathway dose limit protects individuals from all pathways including groundwater. Thus, NRC considers separate requirements for groundwater protection unnecessary. Additionally, protection of groundwater, at levels dictated by MCLs for any organ, can require a level of protection more than 100 times more restrictive than the all-pathway dose limit (e.g., the MCL for iodine-129 dose to the thyroid contributes only 0.1 mrem/yr to the individual dose limit of 25 mrem/yr). NRC is not aware of any health and safety basis for limiting annual dose to fractions of a millirem.

The NRC fully considered the 15 mrem/yr versus 25 mrem/yr all-pathways standard in its rulemaking on the license termination rule. A majority of commenters suggested a 25 mrem/yr or higher standard. Other commenters supported essentially a zero standard—no radiation above background should remain. EPA was almost unique in supporting 15 mrem/yr. As noted above, international and national standards bodies recommend 25-30 mrem/yr as a constraint for any given exposure within an overall 100 mrem/yr public dose standard. Also as noted above, the voluminous GEIS accompanying the NRC rule demonstrated very large costs for very little benefit in reducing the decommissioning unrestricted release standard from 25 mrem/yr to the EPA's proposed 15 mrem/yr plus groundwater application of MCLs. Indeed, in many cases there was a net negative health effect as a result of the additional cleanup.

Question 23. (A) Would releases from any sites under NRC's proposed standards likely exceed maximum contaminant levels permitted under the Safe Drinking Water Act?

Answer. Because NRC's regulation is an all-pathways dose limit, and this regulation exceeds some of the MCLs, it is possible that releases from some sites under the NRC standard could exceed the maximum contaminant levels.

Compliance with the maximum contaminant levels (MCLs) can be very restrictive because: (1) MCLs for certain radionuclides limit doses to levels significantly below NRC's proposed all-pathway dose limit (e.g., the MCL for iodine-129 is limited by the dose to the thyroid, which contributes only 0.1 mrem/yr to the all-pathways individual dose limit of 25 mrem/yr), and (2) EPA has applied groundwater protection requirements to small volumes of water (i.e., applied to any portion of a special source of ground water), rather than to water that is indeed likely to be consumed as drinking water.

The NRC also believes that the application of radionuclides in groundwater may be less protective than the NRC's all-pathways regulation because: (1) the MCLs are based on a modeling approach that has not been updated in over 30 years, (2) MCL requirements do not cover all radionuclides, and (3) MCLs do not provide a consistent risk basis for license termination or waste disposal.

For the proposed high-level waste repository at Yucca Mountain, application of MCLs to small volumes of water (e.g., 10 acre-ft or approximately 12 thousand cubic meters) could require the repository to be, in essence, a zero-release facility. It would be difficult for the Department of Energy to demonstrate zero releases over the proposed compliance period of 10,000 years at any site, except for a site in natural salt formations which generally have no potable groundwater associated with them. For example, the groundwater issue did not arise at the Waste Isolation Pilot Plant because of the absence of potable groundwater at that facility.

Question 23. (B) How would this arise?

Answer. For decommissioning sites, MCLs could be exceeded at sites where groundwater is the principal exposure pathway. In the high-level waste repository program, MCLs could be exceeded in several situations. First, MCLs could be exceeded if the compliance demonstration is required to assume a small volume of water is mixed with releases from a relatively small number of waste packages (e.g. approximately 10 waste packages). Conversely, MCLs could be exceeded if releases from a larger number of containers (i.e., hundreds of waste packages or a few percent of the total number of waste packages in the repository) are mixed with larger volumes of water (e.g., 100,000 cubic meters of water or more). In each of these cases, the most restrictive MCL would be a projected dose of iodine-129 to the thyroid. That dose, in terms of total effective dose equivalent (TEDE), would be 0.1 mrem/yr, a small fraction of the dose limit of 25 mrem/yr TEDE in 10 CFR Part 63. NRC is not aware of any health and safety basis for limiting annual dose to fractions of a millirem.

Question 24. (A) How could the dispute between the EPA and the NRC over radiation standards be resolved other than by amending Superfund?

Answer. Other alternatives include: (1) amending the Atomic Energy Act of 1954 to remove joint jurisdiction by NRC and EPA; (2) establishment of a Congressionally-mandated cleanup standard; (3) establishment of a generally applicable environmental standard by the EPA within its regulations with which NRC would be required to comply; and (4) recognition by the EPA that the NRC's regulation is protective of the public health and safety and the environment.

We believe that the EPA's commitment to its current regulatory approach differs so significantly from the NRC's support of fundamental radiation protection standards as described in national and international standards, that a Congressional resolution of these differences is desirable.

Question 24. (B) Would the proposed amendments have broader implications for EPA's oversight of closed NRC-licensed facilities than just the radiation standards?

Answer. No, the proposed amendments would not impact the EPA's oversight of non-radiological contaminants at NRC-licensed facilities. In fact, the NRC and the EPA have a generally successful working relationship at NRC-licensed facilities that are contaminated with mixed waste (i.e., waste that contains both hazardous waste subject to the Resource Conservation and Recovery Act and radioactive waste subject to the Atomic Energy Act) and in developing joint regulatory guidance for mixed waste. The proposed amendments will not impact this relationship.

Question 25. Why should neighbors of nuclear power plants not receive the same level of protection that people who live near Superfund sites receive?

Answer. We believe that an equivalent level of protection is achieved after considering the methods used in applying the dose standard. NRC's 25 mrem/yr dose limit also includes a provision that the dose must be as low as is reasonably achievable (ALARA). This ALARA provision will generally achieve doses less than 25 mrem/yr. Actual doses will also be less than the 25 mrem/yr limit because of the conservatism built into dose modelling and resultant projections. Because of the uncertainties involved in such projections, the models used by NRC use several layers of conservatism. The combined effect of NRC's ALARA requirement and the conservatism used in estimating dose for determining compliance, will generally result in actual doses significantly less than NRC's dose limit.

The approach suggested by EPA results in the imposition of the CERCLA risk range (i.e., 10^{-6} to 10^{-4}) on radionuclides. The CERCLA guidance indicates that a risk level of 10^{-4} is a level of protection that is not to be exceeded and that NRC's 25 mrem/yr dose criterion is not protective because it would exceed that level.

NRC has reached the following conclusions regarding this risk range and its application: (1) EPA's derivation of 10^{-4} as a protective value appears to be a policy judgement, and is inconsistent with international findings, (2) EPA inaccurately states that NRC's rule is not protective, and (3) EPA inconsistently uses its protective value of 10^{-4} . These conclusions are discussed in the enclosure.

Enclosure: Discussion of NRC Concerns with EPA's CERCLA Guidance Contained in the December 12, 1997 letter from Chairman Jackson to Carol Browner on Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination

DISCUSSION OF NRC CONCERNS WITH EPA'S CERCLA GUIDANCE

1. EPA's derivation of 10^{-4} as a protective value appears to be a policy judgement, and is inconsistent with international findings.

The CERCLA guidance indicates that a risk level of 10^{-4} is a level of protection that is not to be exceeded and that the 25 mrem/yr dose criterion in NRC's final rule is not protective because it would exceed that level. A rationale for EPA's value of 10^{-4} can be found in a *Federal Register* notice (FRN) for EPA's "National Emission Standards for Hazardous Air Pollutants (NESHAPs)" under the Clean Air Act (54 FR 38044, September 14, 1989). The FRN notes that in the Vinyl Chloride decision the EPA was directed to determine an acceptable risk level based on a judgement of what risks are "acceptable in the world in which we live". In response to the Vinyl Chloride decision [Natural Resources Defense Council, Inc. v. EPA, 824 F.2d at 1146 (D.C. Cir. 1987)], the FRN indicates that EPA compiled a review of societal risks to place risk estimates in perspective and to provide background and context for the EPA's judgement on acceptability of risks "in the world in which we live". The FRN states that individual risk of premature death in EPA's survey ranged from 10^{-1} to 10^{-7} , and that the level of approximately 10^{-4} is within the range for individual risk in the survey and at a value that comports with many previous health risk decisions by EPA. The EPA risk value is applied in the CERCLA context [see 55 FR at 8715 (March 8, 1990)].

The International Commission on Radiation Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP) use an approach similar to EPA's in setting an acceptable risk level. ICRP and NCRP are organizations which are chartered, and internationally recognized, for the development of basic radiation protection standards. Their findings are contained in ICRP Publication 60 and in NCRP No. 116, respectively. Based on their review of health and societal issues, both documents (while acknowledging the difficulty of setting standards for an "acceptable" public dose limit) arrive at 100 mrem/yr as a level that can be said to be acceptable. NCRP 116 notes that this value includes a review of risks of mortality faced by the public. The ICRP and NCRP approaches further reduce their 100 mrem/yr limit by the principle of "optimization," which includes considerations of constraints and cost-effectiveness.

Using the principles of setting of "individual dose and risk limits" and "optimization of protection" (noted above) and an additional margin to allow for the potential for exposure to more than one radiation source, the NRC issued a final rule on radiological criteria for license termination. The rule includes a dose criterion of 25 mrem/yr and further reduction based on ALARA (62 FR 39058, July 21, 1997).

The EPA approach of setting an acceptable risk level in the context of reviewing risks acceptable in society is similar to that followed by ICRP and NCRP, but, clearly, is no more scientifically credible than the ICRP or NCRP reports. The FRN on NESHAPs acknowledges that because of the uncertainties over health effects, EPA's decision will depend to a great extent on policy judgement. Therefore, there is no reason to conclude that risk limits set through EPA's process are any more appropriate for protection than those set by ICRP and NCRP, nor is there a reason to conclude that NRC's rule is not protective.

2. EPA inaccurately states that NRC's rule is not protective

The CERCLA guidance does not address several items which will further lower the estimated risk from the implementation of NRC's rule. These items are inherent either in the NRC rule or in the characteristics of radioactive materials and include the following:

- a) the requirement in the NRC rule that doses be reduced below the rule's dose criterion through the ALARA ("as low as reasonably achievable"; defined in 10 CFR 20) process further lowers the risk for the large majority of NRC sites;
- b) radioactive decay of key contaminant nuclides which, for the large number of NRC facilities with contaminant nuclides with half-lives equal to 30 years or less, will result in reduction of the risk near or below that which EPA finds protective; and
- c) the uncertainties associated with estimating risks from radiation at such low dose levels. Although NRC indicated in the FRN for its final rule (at 62 FR 39062) that it was not altering its policy regarding use of the linear non-threshold model as part of the rulemaking, the FRN also stated that there are uncertainties as to whether adverse radiation effects occur at all at the low levels of radiation being discussed. The actual risk from 25 mrem/yr is well within the boundaries of scientific uncertainty regarding the magnitude of the actual health effects at these low doses. Whether or not health effects result from a dose as small as 100 mrem is uncertain, as evidenced by the following state-

ment of the Committee on the Biological Effects of ionizing radiation (BEIR V) in its 1990 report:

Studies of populations chronically exposed to low-level radiation, such as those residing in regions of elevated natural background radiation, have not shown consistent or conclusive evidence of an associated increase in risk of cancer.

This same point was made in a recent safety evaluation report for National Aeronautics and Space Administration (NASA) Cassini mission (July 31, 1997), that EPA participated in, which referenced a Health Physics Society position noting that, "below 10 rem the risk of health effects are either too small to be observed or are non-existent." Further, the Cassini report concluded that at the low individual dose rates expected that there is a high probability that there will be no resultant latent cancers.

3. EPA inconsistently uses its protective value of 10^{-4}

The CERCLA guidance states that the 25 mrem/yr dose criterion in NRC's rule results in an estimated lifetime risk of cancer incidence of 5×10^{-4} and that this is not protective compared to 10^{-4} . On the other hand, the CERCLA guidance states that a 15 mrem/yr dose standard (estimated lifetime risk of cancer incidence of 3×10^{-4}) is acceptable because " 3×10^{-4} is essentially equivalent to the presumptively safe level of 10^{-4} " (the CERCLA guidance cites to the Clean Air Act rulemaking (54 FR 51677) as the basis for this equivalence).

The CERCLA guidance statements are inconsistent and raise two specific issues. First, it is not apparent why one value would be considered unacceptable while the other is acceptable even though both exceed the 10^{-4} risk level. Second, EPA uses cancer incidence to assess acceptability of the radiation dose levels compared to the 10^{-4} value, even though the FRN on NESHAPS (54 FR 38044) indicates that the value of 10^{-4} was based on a survey which resulted in a range of lifetime risk of premature mortality to be 10^{-1} to 10^{-7} . Thus, the point of comparison for assessing acceptability of the risk should be premature mortality. Further, it should be noted that the NCRP and ICRP use cancer mortality as the basis for their decisions. If the risk coefficient for mortality is used, the calculated estimate of lifetime risk from 25 mrem/yr is 3.8×10^{-4} (based on a risk coefficient of 5×10^{-4} versus 7×10^{-4} for incidence), which approximates the 3×10^{-4} value that EPA concluded as essentially equivalent to the protective value 10^{-4} .

Question 26. In recommending elimination of the foreign ownership restrictions in the Atomic Energy Act, has the NRC obtained the concurrence of agencies responsible for defending the U.S. from national security threats, including the Department of Defense, the Joint Chiefs of Staff, the Director of Central Intelligence, and the Director of the Federal Bureau of Investigation? If not, why not? If so, please provide written copies of each agency's concurrence for the record.

Answer. The Commission forwarded this legislative proposal, along with others that have now been incorporated into H.R. 2531, to the Office of Management and Budget (OMB), which normally circulates such proposals among Executive Branch Agencies for the purpose of obtaining their views. OMB has informed us that it provided the NRC draft submission to several agencies, including the Department of Energy, the Department of Defense, the Department of Justice, the Department of State and the National Security Council. According to OMB, none of these agencies objected to the proposal recommending elimination of the foreign ownership restriction.

With respect to components of a Department, such as the Federal Bureau of Investigation (which is a component of the Department of Justice), we understand that OMB generally leaves it to the cognizant Department to determine which of its components should be consulted during the Departmental review of proposed legislation forwarded by OMB. In addition, we understand that OMB does not customarily circulate proposals to the Central Intelligence Agency.

Any substantive or editorial comments received by OMB are provided to the agency proposing the legislation. OMB does not provide the proposing agency (in this case, NRC) with copies of written responses of approval or "no comment" that OMB has received.

Question 27. If the foreign ownership restrictions of the Atomic Energy Act are repealed, on what basis would the NRC determine whether a particular foreign acquisition would be "inimical to the common defense and security," the standard under which you testified that such acquisitions would be reviewed?

Answer. If the proposed legislation were enacted, the Commission would consider a number of factors in making its common defense and security finding. Among the considerations would be the overall state of relations between the United States and the foreign nation; the nonproliferation credentials of the applicant's nation and

whether that nation supports international terrorism. If the Commission has any common defense and security concerns, the Commission would presumably consult with the Executive Branch before making its statutory findings on the application.

Question 28. If U.S. relations with the home country of a foreign owner of a U.S. nuclear plant deteriorated following the acquisition, so that such ownership now threatened the common defense and security, would the NRC be able to revoke a license or order a divestiture?

Answer. The Atomic Energy Act and the Commission's regulations do not permit foreign entities to directly own nuclear power plant facilities. To the extent that a foreign interest owns or controls to some degree a licensee, a negation action plan would have been in place to insulate any matters that might affect common defense and security from the foreign interest, even if the foreign interest was associated with a friendly nation. Thus, if U.S. relations with the respective nation of the foreign interest deteriorated, the foreign ownership or control should not be able to have any impact on the common defense and security by reason of the negation action plan. In general, the NRC could revoke a license or take other regulatory action if at any time after the issuance of the license it determined that possession of the license would be inimical to the common defense and security.

Question 29. If there was an accident at a nuclear plant and the U.S. subsidiary or affiliate of a foreign owner lacked substantial assets other than the plant itself, or failed to obtain sufficient insurance coverage, could we be sure that the victims would be able to obtain damages from the assets of a foreign parent?

Answer. The Price-Anderson Act does not contemplate victims needing to seek damages from the assets of any licensee that has suffered a serious nuclear accident. The long-standing provisions and practices dealing with the damages that could be associated with an accident at a nuclear power plant are intended to assure that potential victims are adequately compensated irrespective of plant ownership.

Under the Atomic Energy Act, all commercial nuclear power plants require a license to operate; under the Price-Anderson Act a condition of that license requires that the plant be covered by the maximum commercial insurance available. The NRC receives endorsements of the policies, and, therefore, has assurance that the maximum commercial insurance coverage is in effect.

The Price-Anderson Act further provides that every operating nuclear power plant participate in a pool with retrospective premium obligations. That is, the requirement to pay damages is not initiated until there is an accident sufficiently large that it appears that the damages will exceed the amount of commercial insurance coverage. The industry pool covers all damages up to the limit of liability for the nuclear incident. The value of the industry pool is now of the order of \$9 billion.

Only if damages were to exceed the value of the industry pool would Congress be called upon to consider whether to compensate for additional damages and, if so, the amount and the means.

Question 30. Is it fair to ask the U.S. taxpayer under Price-Anderson insurance coverage to pick up the costs of a catastrophic nuclear accident caused by a foreign company operating on U.S. soil?

Answer. Insurance coverage under the Price-Anderson Act is not funded by U.S. taxpayers.

As explained in the response to Question 29, above, every operating nuclear power plant has obtained coverage to the maximum insurance coverage available. Additional coverage is provided under the Price-Anderson scheme; that coverage does not rely upon U.S. taxpayer funding for the payment of damages in the event of an accident at a nuclear power plant. Only if the damages exceed combined funds of the required maximum insurance coverage available and of the required nuclear power reactors' own required pool would Congress be called upon to consider how best to deal with that situation. Furthermore, it is notable that none of the funds available under the Price-Anderson scheme may cover damage to the nuclear power plant itself. The funds are entirely reserved for third party liability, that is, for those other than the licensees and their workers. (Workers receive compensation pursuant to Workmen's Compensation laws.)

Question 31. (A) What do you anticipate the length of a combined construction and operating license would be (from the date the license was issued) under the NRC proposal?

Answer. The length of a combined license would be 40 years, in accordance with Section 103.c of the Atomic Energy Act of 1954 (1954 Act).

The NRC has requested a legislative clarification to the 1954 Act to eliminate the uncertainty associated with the duration of operation under a combined license. The NRC's proposal is that the start of the 40-year period begins after completion of construction, when the Commission makes the finding required by 10 CFR 52.103(g). Since, under the older two-step licensing process, the operating license for a facility

became effective immediately upon issuance of such a license, the duration of operation of the facility could be a full 40 years. There is no reason why the potential duration of operations under a combined license should be less.

Question 31. (B) Would there be any upper bound on the total length of the license?

Answer. A combined license issued under 10 CFR Part 52 would be limited to 40 years, in accordance with Section 103.c of the Atomic Energy Act of 1954. The licensee could request a renewed operating license (not to exceed 20 years) under 10 CFR Part 54.

Question 32. I understand the proposal to eliminate NRC antitrust review is included in the President's electricity restructuring proposal. Wouldn't a comprehensive electricity restructuring bill that addressed broader market power concerns be a more appropriate forum in which to consider this review?

Answer. NRC's antitrust proposal is contained in both the Administration's electricity restructuring bill (H.R. 1828) and NRC's Authorization Bill for Fiscal Year 2000 (H.R. 2531). Enactment of the antitrust review elimination proposal through either of these bills would be welcomed by the Commission.

NRC's antitrust reviews are duplicative of other Federal agencies' efforts, and continuing this agency's efforts in this area is wasteful of its resources and contrary to the objective of streamlining government. Thus, even absent an electricity restructuring proposal, it would make sense for the NRC to go forward with a proposal to eliminate NRC antitrust reviews. For this reason, an NRC authorization bill is also an appropriate forum in which to consider a proposal to eliminate NRC antitrust reviews.

Question 33. (A) Do you think that removing a requirement that hearings on uranium enrichment facilities be "on the record" will enhance public confidence in the NRC? If so, how?

Answer. Removing the requirement that hearings on licensing of uranium enrichment facilities be "on the record" will provide the Commission with the same flexibility to determine the hearing procedures appropriate for such a hearing as the Commission already has with respect to other adjudicatory hearings regarding NRC licensing held under section 189 of the Atomic Energy Act. The Commission has the discretion to determine the degree of formality required in the latter proceedings, and is of the view that having such discretion is beneficial to the public.

Hearings that are required to be "on the record" must conform to the more elaborate formalities prescribed by the Administrative Procedure Act, and if not appropriately disciplined, can be inefficient, protracted, and costly to both the government and the parties to the proceedings. The high cost, length, and formality of even well-disciplined proceedings can discourage public participation. We know of no other technical agency in the Federal government makes scientific and technical decisions in trial-type hearings. In fact, EPA, in its comments on our proposed standards for the nation high-level waste repository, recommended against formal proceedings, as did the DOE advisory committee that recommended in 1996 that DOE's self-regulation of its own nuclear facilities be replaced by external regulation. In fact, more and more Government agencies have been exercising greater flexibility in determining the appropriate hearing process in their adjudicatory proceedings on non-technical issues, in recognition of the fact that more streamlined and less formal proceedings can benefit the parties and the public, and help to conserve the resources of the agency holding the proceedings and the parties to the proceedings. Striving for these goals should enhance public confidence in the NRC.

Question 33. (B) After this restriction was removed, what legislative direction would remain on the form of hearings and on the recording of outside views on the licensing?

Answer. If the restriction were removed, the following legislative directions would remain in the Atomic Energy Act with regard to hearings and the recording of outside views on the licensing of a uranium enrichment facility:

- section 193 (b)(1) requires the Commission to conduct a single adjudicatory hearing with regard to the licensing of the construction and operation of a uranium enrichment facility under section 53 and 63 of the Act;
- section 193(b)(2) requires the hearing to be completed and a decision issued before the issuance of a license for that purpose;
- under section 189 a., in any proceeding under the Act for the granting of a license, the Commission must grant a hearing upon the request of any person whose interest may be affected by the proceeding, and must admit any such person as a party to the proceeding.
- under section 189 b., the final decision in a hearing on the licensing of a uranium enrichment facility is subject to judicial review.

Question 34. (A) Would receiving gifts from NRC licensees or their contractors or from associations that represent NRC licensees compromise the integrity of the NRC?

Answer. No. To address the issue raised by this question, the NRC's legislative proposal regarding gift acceptance (which has been incorporated into H.R. 2531) provides that the Commission must establish written criteria for determining whether to accept gifts, and that such criteria must take into consideration whether the acceptance of a proffered gift would compromise the integrity of, or the appearance of the integrity of, the Nuclear Regulatory Commission or any officer or employee of the Commission. The purpose of this provision is to require the NRC to develop gift acceptance standards that will ensure that there will be no compromise—and no appearance of compromise—of the integrity of the Commission or its employees.

It is noteworthy that a broad spectrum of Federal agencies, including independent regulatory agencies such as the NRC, have statutory gift acceptance authority. The Commission anticipates that this gift acceptance authority primarily would be used to accept technical publications and training equipment and materials.

Question 34. (B) If the NRC accepts gifts with restrictions, would those with money to give to the NRC be able to influence NRC priorities?

Answer. No. The Commission's policy is to maintain an arms-length relationship with its licensees, contractors, and others who might be motivated to seek influence over NRC priorities. This would be reflected in the gift acceptance criteria that the Commission would develop to implement the legislation.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SEP 22 1999

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

The Honorable Joe Barton, Chairman
Subcommittee on Energy and Power
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

I am writing in response to your letter of August 31, 1999, in which you forwarded several questions from Congressman Edward J. Markey regarding my testimony to the Energy and Power Subcommittee on July 21, 1999. Congressman Markey's questions focus on Section 207 of H.R. 2531 which is the portion of the bill that would amend the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) by severely limiting the role of the Superfund program at facilities currently or previously licensed by the Nuclear Regulatory Commission (NRC). Below are EPA's responses to the questions raised by Congressman Markey.

1. **How will cleanups differ, and at what types of sites, if the cleanup standards are those favored by the NRC vs those proposed by the EPA? Are the affected sites almost exclusively long-closed sites with historical releases?**

NRC's final rule on "Radiological Criteria for License Termination", promulgated on July 21, 1997, allows cleanups that are not protective of human health and the environment. As such the rule is inconsistent with the Administration's principles for reforming Superfund and EPA's policy under the existing CERCLA law. NRC's rule does not include a separate requirement for protecting groundwater that is a current or potential source of drinking water, which is inconsistent both with EPA's current and previous policies for groundwater protection found in "Protecting the Nation's Ground Water: EPA's Strategy for the 1990's" (EPA 21Z-1020 July 1991) and "Ground-Water Protection Strategy" (August 1984). Also, NRC's rule allows dose limits up to 100 mrem/yr (which EPA estimates corresponds to a risk of approximately 2×10^{-3} which is essentially a "two-in-a-thousand" additional likelihood of an individual getting cancer during his lifetime, or two new cancer cases per thousand people) which is outside of the 10^{-4} to 10^{-6} cancer risk range that EPA generally considers protective.¹

EPA does believe that NRC's implementation of its rule could result in appropriate cleanup at the vast majority of sites, and EPA is anticipating that there will be a very small number of sites that will be affected by EPA and NRC's differences on what constitutes protectiveness of human health and the environment.

EPA does not have adequate information to determine how many and what type of sites (e.g., long closed sites) NRC will decommission at levels (e.g., dose levels, concentrations in groundwater) that EPA would not consider protective of human health and the environment, nor how many NRC sites EPA might need to address for reasons other than risks posed by NRC-licensed material.

Sometimes EPA response actions at NRC-licensed sites occur in cooperation with NRC, and at the same time as an NRC response action, to address contamination that NRC is not addressing, including non-radiological (chemical) contamination or off-site contamination. At other sites, EPA has taken action to address formerly licensed material that posed a threat to human health and the environment. Below are three site examples, that illustrate the types of EPA response actions that would be adversely affected if section 207 were to remain in H.R. 2531:

1. At the Beaumont Glass site in Morgantown, West Virginia, EPA conducted a removal action after NRC terminated the license. The response action began as an emergency removal. During the course of the emergency removal, further action was deemed necessary and was conducted as a time-critical removal. The area surrounding the Site has mixed land uses, including industrial, commercial and residential uses. The downtown West Virginia University campus lies within a half mile of the site. An NRC license for Beaumont was terminated in 1992. EPA's removal action was initiated after conducting an EPA removal sampling assessment and criminal investigation at the site in October 1996. Hazardous substances known or suspected to be present at the Site included, but were not limited to, hydrofluoric and nitric acids, heavy metals, polychlorinated biphenyls (PCBs), and friable asbestos. Also, radioactive materials were found at the Site in small glass containers, five gallon metal buckets and a 30 gallon fiber drum. The radioactive materials were subsequently determined to contain uranium,

¹Enclosed with this letter is a guidance that includes a detailed discussion of the basis for the conclusion that the dose limits in the NRC rule are not protective. See attachment B of the enclosed guidance "Analysis of what Radiation Dose Limit is Protective of Human Health at CERCLA Sites (Including Review of Dose Limits in NRC Decommissioning Rule)" to the memorandum from Stephen D. Luftig titled: "Establishment of cleanup levels for CERCLA sites with radioactive contamination" (OSWER Directive 9200.4-18), August 1997, p. 3.

radium, thorium and potassium. At EPA's request, NRC repeated their closeout survey. EPA subsequently found and removed additional contamination. This Site was addressed through a removal action and was not placed on the NPL.

2. At the Lake City Army Ammunition Plant in Missouri, oversight of the cleanup of this site by the Army is being conducted cooperatively by EPA, NRC, and the State of Missouri. This Site is adjacent to Lake City, with private residences off-site using groundwater from private wells. Groundwater beneath the Site, soil, and surface water are contaminated with volatile organic compounds (VOCs), various explosive, and heavy metals including lead, arsenic, and chromium from former waste disposal practices. Without CERCLA action, contaminated groundwater would not be addressed and might be consumed by local residents. Contaminated groundwater has already migrated off-site in one area of the plant, and is being contained on-post by a CERCLA response action in another area. Radioactive contaminants are co-located with other CERCLA hazardous substances in some areas of the site. Most of the risk posed by contaminants at the Site are from contaminants not regulated by NRC's license with the Army. Based on these risks, EPA listed the Site in 1987 on the National Priorities List. Carcinogenic risks to future users of groundwater near the site, in the absence of CERCLA actions, range as high as 2×10^{-1} . Vinyl chloride has been found in the groundwater at concentrations four thousand times the federal Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act. EPA and NRC have coordinated cleanup activities at the Site to minimize regulatory duplication. NRC is planning to defer oversight of the investigation and remediation of most of the radioactive contamination outside of the Lake City (ammunition) test firing range to EPA.
3. At the United Nuclear Corporation (UNC) in New Mexico, EPA is addressing the oversight of off-site ground water contamination while NRC is the lead agency for the oversight of on-site contamination, including reclamation and closure activities. New Mexico originally requested EPA involvement at the Site after a containment tailings pond broke in 1979 releasing 93 million gallons of slurry to Rio Puerco River. UNC was placed on the National Priorities List on September 8, 1983 (in the same Federal Register notice as the deferral policy to NRC) as a result of contaminated seepage originating from the tailings disposal ponds. The UNC site is contaminated with manganese, nickel, aluminum, arsenic, ammonia, thorium, radium, sulfates, nitrates, and total dissolved solids. Radium has been found in the groundwater at concentrations greater than ten times the federal MCL, while aluminum and arsenic have been found in concentrations one hundred times the New Mexico Water Quality Act and the federal MCLs, respectively. The nearest residence is approximately one mile from the old tailings ponds. Local residents potentially affected by the off-site migration of contaminated groundwater include members of the Navajo Nation.

2. Is the dispute between the EPA and the NRC solely that of a 15 mrem standard versus a 25 mrem standard?

No, the amendments to CERCLA proposed in Section 207 of H.R. 2531 encompass more than EPA's difference of opinion with NRC over dose limits. In a March 25, 1998 letter to Senator Joseph Lieberman (copy attached), EPA previously stated the Administration's opposition to NRC draft legislative provision similar to those in Section 207. The proposed amendments in Section 207 include several provisions that this Administration has opposed during CERCLA reauthorization. (*see attached correspondence from Carol Browner, EPA Administrator, to Thomas Bliley, Chairman of the House Committee on Commerce, 5/7/97.*) Please see the response to the next question for further discussion of the scope of the dispute.

3. What other aspects of the site release standards could be affected by the proposed amendment?

The proposed amendments would restrict EPA's authority to list sites on the National Priorities List (NPL) that had been decommissioned by NRC in accordance with NRC's license termination rule. This Administration strongly opposes proposals to restrict EPA's authority to list sites on the NPL. Also, these proposed amendments would restrict EPA's ability to commence removal actions.

In addition, under the NRC rule, sites with ground water contamination that are a potential or current source of drinking water will not be remediated to drinking water standards, thus potentially shifting the burden of cleanup to public water systems in the future or allowing individuals to drink water from private wells that are contaminated above the drinking water standard. It is this Administration's position that current or potential sources of drinking water are a valued national resource and should be protected to levels suitable for drinking (e.g., Maximum Contaminant Levels (MCLs) established under the Safe Drinking Water Act (SDWA)). A cleanup standard based solely on a multipathway dose limit (either 15 or 25 mrem/yr), does not ensure that ground water is cleaned up within the aquifer, but instead could rely solely on exposure controls. It should be noted that NRC, in a May 30, 1996 letter from Chairman Jackson to Congressman Bliley, has previously recommended as an amendment to SDWA a limitation regarding the use of MCLs in other statutes. This legislative proposal was not adopted.

Finally, the amendments would prohibit EPA from recovering the costs of cleanup actions conducted under CERCLA of formerly NRC licensed material, even when NRC or an Agreement State requests such an action. The Administration supports maintaining the principle that those who are responsible for the contamination must pay for the cleanup.

4. Do the EPA and the NRC disagree on the degree of risk exposed individuals should undergo, on the risk posed by a given level of radiation, or both?

EPA and NRC disagree over acceptable cleanup levels and use somewhat different methodologies for estimating risks from radiation. Under CERCLA, all remedies are required to attain cleanup levels that "at a minimum. . . assure protection of human health and the environment." CERCLA §121(d)(1). The National Contingency Plan (NCP) provides that, for carcinogens, preliminary remediation goals should generally be set at levels that represent an upper-bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} . 40 CFR § 300.430(e)(2)(I)(A)(1). This regulatory level was set based on EPA's conclusion that the CERCLA protectiveness mandate is complied with "when the amount of exposure is reduced so that the risk posed by contaminants is very small, i.e., at an acceptable level. EPA's risk range of 10^{-4} to 10^{-6} represents EPA's opinion on what are generally acceptable levels." 55 Fed. Reg. at 8716 (March 8, 1990). EPA's adoption of this risk range was sustained in judicial review of the NCP. *State of Ohio v. EPA*, 997 F.2d 1520, 1533 (D.C. Cir. 1993).

Under appropriate circumstances, risks of greater than 1×10^{-4} may be acceptable. CERCLA guidance states that "the upper boundary of the risk range is not a discrete line at 1×10^{-4} , although EPA generally uses 1×10^{-4} in making risk management decisions. A specific risk estimate around 10^{-4} may be considered acceptable if justified based on site-specific conditions."² Other EPA regulatory programs have developed a similar approach to determining acceptable levels of cancer risk. For example, in a Clean Air Act rulemaking establishing NESHAPs for NRC licensees, Department of Energy facilities, and many other kinds of sites, EPA concluded that a risk level of " 3×10^{-4} is essentially equivalent to the presumptively safe level of 1×10^{-4} ." 54 Fed. Reg. at 51677 and 51682 (December 15, 1989). EPA explicitly rejected a risk level of 5.7×10^{-4} as not being equivalent to the presumptively safe level of 1×10^{-4} (in the case of elemental phosphorus plants) in this rulemaking. 54 Fed. Reg. at 51670.

Consistent with the 10^{-4} to 10^{-6} risk range, EPA has considered cancer risk from radiation in a number of different contexts, and has concluded that levels of 15 mrem/yr EDE (which equate to approximately a 3×10^{-4} cancer risk) or less are generally protective and achievable.³ EPA has explicitly rejected levels above 15 mrem/yr EDE as being not sufficiently protective. EPA does not use the 15 mrem/yr level as a presumptive cleanup level but uses the risk range when ARARs are not used to set cleanup levels.

The dose levels established in the NRC Decommissioning rule, however, are not based on the 10^{-4} to 10^{-6} risk range or on an analysis of other achievable protective cleanup levels used for

²"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions" from EPA Assistant Administrator Don R. Clay, April 22, 1991.

³It should be noted that 15 mrem/yr is a dose level, not a media remediation level. Accordingly, this level could be achieved at CERCLA sites through appropriate site-specific combinations of active remediation and land-use restrictions to ensure no unacceptable exposures.

radiation and other carcinogenic standards. Rather, they are based on a different framework for risk management recommended by the International Commission on Radiation Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP). NRC's application of this framework starts with the premise that exposure to radiation from all man-made sources, excluding medical and natural background exposures, of up to 100 mrem/yr, which equates to a cancer risk of 2×10^{-3} , is acceptable. Based on that premise, it concludes that exposure from decommissioned facilities of 25 mrem/yr, which equates to a cancer risk of approximately 5×10^{-4} , is acceptable, and allows the granting of exceptions in certain instances permitting exposure up to the full dosage of 100 mrem/yr from these facilities. EPA has carefully reviewed the basis for the NRC dose levels and does not believe they are generally protective within the framework of CERCLA and the NCP. Simply put, NRC has provided, and EPA is aware of, no technical, policy, or legal rationale for treating radiation risks differently from other risks addressed under CERCLA and for allowing radiation risks so far beyond the bounds of the CERCLA risk range.

In addition to EPA's and NRC's disagreement concerning acceptable cleanup levels, there also exist some differences between the two agencies regarding their risk assessment methodologies at such sites. In the absence of applicable, or relevant and appropriate requirements (ARARs), cleanup levels at CERCLA sites are generally expressed in terms of risk levels, rather than millirem as at NRC sites, as a unit of measure. CERCLA guidance recommends the use of slope factors in the EPA Health Effects Assessment Summary (HEAST) tables when estimating cancer risk from radioactive contaminants. Were the slope factors in HEAST to change, the actual site-specific concentrations that correspond to the risk range would change to reflect this change in science. Millirem is estimated using dose conversion factors. NRC then multiplies the millirem estimate by a risk-per-dose-factor to derive an estimate of cancer risk. In a recent comparison of the differences between EPA's and NRC's approaches to risk assessment, the National Academy of Science stated that "EPA's approach should provide more realistic estimates of risk than the approach used by the Nuclear Regulatory Commission."⁴

Although EPA acknowledges uncertainty on the risks of radioactivity, there is more certainty for radiation risk than for the risk of almost any other pollutant. If in the future the current estimates of radiation risk were to change, the Superfund risk range would allow flexibility in reflecting those changes in actual cleanup decisions. In contrast, NRC would have to do a new rulemaking to reflect updated risk estimates.

⁴National Research Council. 1999. "Evaluation of Guidelines for Exposures to Technologically Enhanced Naturally Occurring Radioactive Materials" Washington, DC. National Academy Press. pp 225

5. How could the dispute between the EPA and the NRC over radiation standards be resolved other than by amending Superfund?

Rather than amending CERCLA to resolve EPA's and NRC's differences of opinion, EPA continues to believe that the primary focus of EPA and NRC staff's efforts in this regard should be directed towards developing, in a timely manner, a Memorandum of Understanding (MOU) between the NRC and EPA that would apply when NRC licensees are undertaking decontamination and decommissioning. In this way, NRC and EPA will work together to ensure that sites do not face dual regulation which can be avoided if sites are cleaned up to protective levels.

6. Would the proposed amendments have broader implications for EPA's oversight of closed NRC-licensed facilities than just the radiation standards?

If the amendments were to become signed into law as proposed, contamination other than the formerly or currently NRC-licensed radioactive material addressed by HR 2531 may be affected. In some instances, EPA response actions have occurred in cooperation with NRC to address contamination not addressed by NRC, including non-radiological (chemical) contamination or off-site contamination. If Section 207 of HR 2531 were to become law, EPA would not be able to recover the costs of addressing formerly licensed NRC material and off-site NRC material. EPA might have increased difficulty in recovering costs for non-radiological material that is mixed with formerly licensed material. Please see below two site examples, that illustrate the types of EPA response actions that might be adversely affected, if Section 207 of HR 2531 were to amend CERCLA:

1. In 1974, at W.R. Grace/Wayne Interim Storage in New Jersey, the NRC released land for unrestricted use after the NRC licensee buried much of the contaminated material. In 1980, a State aerial survey showed elevated radiation levels at the NRC licensee plant site and off-site, including at a school bus maintenance facility, township park, and the banks of a local stream. Much of the offsite contamination was spread by runoff and water discharges from the site. Based on this information and additional surveys, the Wayne Site was placed on the NPL in 1984. Although the Wayne State site was released by NRC as protective for unrestricted use, a risk assessment conducted by the Department of Energy (DOE) found contamination to pose unacceptable risks for commercial/ industrial land use. DOE estimated the carcinogenic risk to an on-site worker as 2×10^{-2} from the radiological contaminants and 4×10^{-3} from chemicals, while the non-cancer chemical toxicity was a Hazard Index (HI) of 13. The carcinogenic risk to a nearby off-site resident drinking the groundwater was estimated 2×10^{-2} from radionuclides, and 1×10^{-2} from chemicals with an HI of 30. WR. Grace has agreed to pay approximately \$32 million in past and future response costs, as well as Natural Resource Damage claims

2. At the RAMP Industries, Inc. site in Colorado, EPA has completed a removal action to cleanup the site. Colorado, the NRC Agreement State, requested EPA's assistance after the last remaining employee of the facility informed the state that he was preparing to leave the site abandoned. The site is located in an industrial and residential area of Denver. A housing development and several small businesses are located within 200 feet of the site. Approximately 96,500 people live within a four-mile radius of the site. RAMP processed radioactive and mixed wastes. The mixed waste RAMP received contained solvents such as trichloroethane, tetrachloroethylene, methylene chloride, acetone, ethyl benzene, toluene, and methanol, which were mixed with radioactive materials and contained in 55-gallon drums. In 1995/1996, 44 PRPs (owners and operators at the site) removed approximately 500 barrels under EPA administrative orders. Other wastes at the site that were subsequently addressed through either off-site disposal or treatment and off-site disposal, included: sealed sources (radioactive wastes contained in cement or otherwise inaccessible); dry active waste miscellaneous radioactive waste and biohazard waste. The RAMP site was not proposed for listing on the National Priorities List. In an action filed by the State of Colorado, the Denver District Court ordered owner Daniel Caulk and RAMP to pay more than \$6 million in fines and penalties for permit and license violations. EPA has been working with the State to ensure that any money recovered from Mr. Caulk and/or RAMP is transferred to EPA to help pay for the site cleanup. More than 800 PRPs have been identified for this site, most of whom were generators of the wastes sent to the site. EPA continues to pursue other PRPs in an attempt to recover the remainder of the cleanup costs. To date, the Agency has spent approximately \$11 million cleaning up the site.
7. **Would releases from any sites under NRC's proposed standards likely exceed maximum contaminant levels permitted under the Safe Drinking Water Act?**

NRC's rule does not include a requirement for protecting groundwater that is a current or potential source of drinking water to drinking water standards (e.g., MCLs). However, EPA cannot make a determination of how many sites NRC will decommission with groundwater contamination in excess of MCLs. EPA does not have adequate information to determine how many and what type of sites NRC will decommission with concentrations in groundwater that exceed MCLs.

8. **How would this arise?**

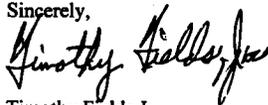
The NRC rule does not contain any numerical standards (e.g., MCLs) for the protection of current or potential future sources of drinking water. Sites decommissioned under the NRC could achieve an all pathway exposure of up to 100 mrem/yr (the primary MCL is 4 mrem/y).

In closing, I would like to reiterate that radioactive contamination is not singled out in CERCLA or in EPA regulations as a privileged pollutant for which EPA should allow exceedances above the carcinogenic risk range (10^{-4} to 10^{-6}) that was determined generally to be

protective for other carcinogenic contaminants. Further, ground waters should be returned to beneficial reuse which includes meeting MCLs or non-zero Maximum Contaminant Level Goals (MCLGs) established under the Safe Drinking Water Act for all contaminants including radionuclides within the ground water plume, where MCLs or MCLGs are relevant and appropriate for the site. Again, I am confident that most of NRC's sites will achieve this end routinely, so the issue of how to satisfy these provisions is expected to be a rare problem. EPA's experience with CERCLA sites shows that even for the most difficult sites we can meet both of these goals. EPA continues to believe that interagency deliberations between EPA and NRC, as opposed to legislative amendments to CERCLA, are the most appropriate process for addressing this issue.

We would be glad to meet with you or your staff to discuss issues pertaining to EPA's difference of opinion with NRC regarding protective levels for cleaning up sites.

Sincerely,



Timothy Fields Jr.,
Assistant Administrator

Enclosures



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 25 1998

THE ADMINISTRATOR

The Honorable Joseph Lieberman
United States Senate
Washington, D.C. 20510

Dear Senator Lieberman:

I am writing in response to your request for the Administration's position regarding a letter sent by Chairman Shirley Jackson of the Nuclear Regulatory Commission (NRC) on September 3, 1997, to Senator John Chafee, Chairman of the Committee on Environment and Public Works. Chairman Jackson's letter transmitted NRC's position concerning reauthorization of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and enclosed draft legislative language. This letter is to inform you that the Administration opposes NRC's draft legislative language.

I have directed my staff to continue discussions with NRC with the goal of ensuring the selection of cost-effective cleanups that are protective of human health and the environment, and that facilitate the beneficial reuse of properties formerly licensed by the NRC. On February 19, 1998, EPA sent a letter to NRC that transmitted a draft Memorandum of Understanding (MOU) concerning how the two Agencies should coordinate when NRC licensees are proposing decommissioning or license termination. EPA's letter was in response to an earlier draft MOU transmitted by NRC. I believe that interagency deliberations between EPA and NRC, as opposed to legislative amendments to CERCLA, are the most appropriate process for addressing this issue.

I hope that this letter will facilitate the continued common-sense discussion of the responsible reforms needed to advance the Superfund toxic waste cleanup program in the 105th Congress. The Office of Management and Budget has advised that there is no objection to the Agency's views on this matter from the standpoint of the Administration's program.

Sincerely,

A handwritten signature in cursive script, appearing to read "Carol M. Browner".

Carol M. Browner



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 7 1997

THE ADMINISTRATOR

The Honorable Thomas Bliley
Chairman
Committee on Commerce
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

I am pleased to forward to you the Clinton Administration's legislative reform principles for Superfund, the nation's toxic waste cleanup law. These principles reflect the Administration's vision for the future of Superfund – a future that builds upon our progress over the past four years. In that time, we have worked to make Superfund faster, fairer and more efficient to protect the nearly 70 million Americans, including 10 million children, who live within four miles of a toxic waste site. As the Superfund reauthorization process begins, we are sharing these principles so that you and the many stakeholders affected by these cleanups can understand our vision for the future and for the legislative reforms that will help shape that future.

We strongly believe that any legislative reform of Superfund must build on the dramatic progress we have made in improving and speeding toxic waste cleanups across the nation. We have set a record pace for cleaning up toxic waste sites. At this time, 1100 sites are undergoing or have completed cleanup construction, with cleanup complete at more than 400 of the worst toxic waste sites. Fully two-thirds of the completed cleanups were accomplished in the past four years, more than were completed in the first 12 years of the program. We have pledged to clean up an additional 500 sites by the year 2000, doubling the pace of cleanups. Furthermore, EPA's enforcement program has produced extremely favorable results. Private parties have generated almost \$12 billion in funds for cleanup and EPA has settled liability with over 14,000 small volume contributors.

The result is a toxic waste cleanup program fundamentally different from the Superfund program of four years ago. However, we know that more remains to be done to protect the health and the environment of American communities. The Administration's principles provide our vision of how we can best address liability and enforcement; remedy selection; State and Tribal roles in cleanup; natural resource damages; community health and community involvement; Brownfields redevelopment and voluntary cleanups; enhanced protection of communities from toxic substances; and other important issues that need to be addressed.



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As the House and Senate begin their discussions on responsible Superfund legislative reform, we are particularly pleased that you have invited stakeholders to participate. Their contribution will assist all of us in achieving the broad-based consensus needed to reauthorize this important program.

I hope the enclosed principles will contribute to a common-sense discussion of the responsible reforms needed to advance the Superfund toxic waste cleanup program in the 105th Congress. We stand ready to work with you and all interested parties to achieve the goal of better protection for all American communities through this vital effort.

Sincerely,



Carol M. Browner

Enclosure

The Clinton Administration's Superfund Legislative Reform Principles

May 7, 1997

Legislative reform must build on the administrative improvements to the program and must be narrowly targeted to address critical issues in need of a legislative solution. The Administration's goals for Superfund reauthorization continue to be to: protect human health, welfare and the environment; maximize participation by responsible parties in the performance of cleanups; ensure effective State, Tribal and community involvement in decision making; and promote economic redevelopment or other beneficial reuse of sites, all in a manner that increases the pace of cleanups, improves program efficiency and decreases litigation and transaction costs, and which does not disrupt or delay ongoing progress. The Administration will support Superfund legislation that adheres to the following principles:

1. Liability and Enforcement

- Maintain the principle that those who are responsible for the contamination must pay for the cleanup.
- There should be clearly defined exemptions or limitations on liability, reflecting EPA's experience with administrative reforms, for very small volume contributors, generators and transporters of municipal solid waste, and bona fide prospective purchasers.
- Legislation should establish "orphan share" funding from a separate account consistent with the President's Fiscal Year 1998 budget request. Orphan share compensation, defined as a contribution for responsibility attributable to insolvent or defunct parties, must not compete against cleanup dollars or reduce the funding available for response actions.
- Legislation should reduce transaction costs by promoting settlements and encouraging contribution allocation of costs among settling parties through a flexible, nonprescriptive process that makes effective use of available "orphan share" funding.
- The Administration strongly opposes, among other proposals: "site liability carve-outs" (i.e., elimination of liability for persons based upon type of site); limits on the President's CERCLA section 106 authority; pre-enforcement judicial review of remedy decisions; repeal of all or part of the current strict, retroactive, joint and several liability standards; preemption of state liability laws; and changes to the liability system that slow cleanups, reduce program efficiency or increase litigation and transaction costs, or that reduce the possibility of settlements.

2. **Remedy**

- Remedies must protect human health and the environment over the long term.
- Ground water should be restored to beneficial uses, wherever practicable. Maximum Contaminant Levels under the Safe Drinking Water Act or more stringent applicable State standards should be established as the cleanup standards for ground water whose beneficial use is or is anticipated to be as a drinking water source, unless technically impracticable.
- Consideration of reasonably anticipated future land use should continue to be factored into the remedy selection process, based on consultation with the affected community.
- Cleanups should be cost-effective and foster productive reuse of contaminated property to the degree practicable.
- A preference for treatment of highly toxic, highly mobile waste should be retained. The mandate for permanence should be modified to emphasize long-term protection and reliability.
- Cleanups should comply with the applicable substantive requirements of other Federal environmental laws and State environmental or facility siting laws applicable to remedial actions. The requirement to comply with relevant and appropriate requirements should be eliminated.
- The dollar and time limits on Fund-financed removals should be increased.
- The Administration strongly opposes, among other proposals, the following: prescriptive cost or risk assessment requirements, particularly those that would result in unprotective remedies; mandated remedy updates (including any remedy reopener provisions); default approval of remedy decisions; provisions which would fail to discourage contamination of currently uncontaminated land, ground water, or natural resources; provisions which would inhibit coordination between cleanup and natural resource restoration; elimination of applicable requirements from Federal laws or State environmental or facility siting laws; pre-enforcement judicial review of remedy decisions; and any other changes that disrupt or slow cleanups or settlements or result in remedies that are inadequately protective of human health, welfare, environment and natural resources.

3. **State and Tribal Issues**

- Increase the State and Tribal role in the Superfund program through flexible partnership agreements between EPA and States and Tribes, based upon demonstrated resources and capabilities, to enable all parties to work together to determine which sites should proceed under what authorities, and under whose lead, so that governmental resources are complementary, not duplicative. These partnership agreements should include provisions to ensure appropriate use and conservation of Superfund monies.
- Support the development and expansion of State and Tribal cleanup programs, including State Voluntary Cleanup Programs, and better coordination between federal agencies and the States and Tribes.
- The Administration strongly opposes, among other proposals: limitations on the Federal ability to respond to a threat to human health, welfare or the environment, or to enforce a response; preemption of State and Tribal cleanup standards; State and Tribal waivers of federal authority; transfer of responsibilities to States or Tribes in a manner that disrupts or delays response actions or that results in less protective cleanups; default approvals of State or Tribal programs.

4. **Natural Resources Damages**

- The Administration supports the legislative proposal on Natural Resources Damages (NRD) that it drafted and sent to the House and Senate in October, 1996. This legislative proposal would clarify that NRD claims would be focused on restoration costs rather than monetized values and would be presented in a more timely and orderly fashion, thereby discouraging premature litigation of NRD claims and enhancing coordination and integration of remedy and restoration.
- The Administration strongly opposes, among other proposals: repeal of all or part of the current liability standards; proposed caps on recoverable damages; limitations on the natural resources that can be restored and the scope of trusteeship; inappropriate transition rules; or limitation on the type of values that may be considered in determining the scope or scale of restoration or damages.

5. **Community Health and Community Involvement**

- The Administration supports the continued protection of human health of communities impacted by Superfund sites through efforts of public health assessments, health effects studies, and other public health activities prescribed by law.
- Continue efforts to enhance community involvement and development and provision of information to communities, including the opportunity for formally established community advisory groups at Superfund sites, and ensuring meaningful citizen involvement in determining the assumptions regarding reasonably anticipated future land use.
- Support authority to award Technical Assistance Grants at NPL and non-NPL sites.
- The Administration strongly opposes any provisions that would impair meaningful community input and involvement, or would disrupt existing citizen advisory groups or use inappropriate, prescriptive membership requirements for such groups.

6. **Brownfields and Voluntary Cleanup Programs**

- Support expansion of the current Brownfields program, including funding for site identification and assessment, funding to capitalize revolving loan funds for brownfield site cleanups, technical support and funding for job training and workforce development, and provisions for bona fide prospective purchasers.
- Support the development, enhancement and expansion of State voluntary cleanup programs that meet appropriate standards as stated above.
- The Administration strongly opposes provisions, among other proposals, which limit current brownfields grant eligibility and flexibility. The Administration also strongly opposes provisions including the following: restrictions on federal ability to adequately protect human health, welfare and the environment, particularly at higher risk sites, under State voluntary cleanup programs, and other limitations such as any limits on the authority to act upon a determination of imminent and substantial endangerment to human health, welfare or the environment.

7. **Enhancing Protection of Communities from Toxics**

- Legislation should ensure that communities have access to information about releases of hazardous substances and other toxics.
- Legislation should ensure that EPA has the ability to obtain data from responsible parties about the cost of cleanups for the purposes of program evaluation.
- Legislation should ensure that successful petitions for reimbursement under CERCLA section 106(b) do not have a significant adverse impact on ongoing cleanup activity or otherwise compromise Superfund programs.

8. **Other Important Issues**

- The Administration does not support legislative amendments specifically for federal facilities.
- The Administration supports reinstatement of the Superfund taxes, and, through separate legislation, the establishment of a new tax incentive to promote the redevelopment and cleanup of brownfields.
- The Administration strongly opposes a cap on further listings on the National Priorities List, premature or "default" deletion of sites from the NPL, and other proposals to restrict EPA's authority to list sites on the NPL.
- The Administration strongly supports the research activities authorized by CERCLA.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 22 1997

OSWER No. 9200.4-18

MEMORANDUM

SUBJECT: Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination

FROM: Stephen D. Luftig, Director *Stephen D. Luftig*
Office of Emergency and Remedial Response

Larry Weinstock, Acting Director *Larry Weinstock*
Office of Radiation and Indoor Air

TO: Addressees

PURPOSE

This memorandum presents clarifying guidance for establishing protective cleanup levels¹ for radioactive contamination at Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) sites. The policies stated in this memorandum are inclusive of all radioactive contaminants of concern at a site including radon.² The directive is limited to providing guidance regarding the protection of human health and does not address levels necessary to protect ecological receptors.

¹This directive provides guidance on cleanup levels expressed as a risk, exposure, or dose level and not as a soil concentration level. The concentration level for various media, such as soil, that corresponds to a given risk level should be determined on a site-specific basis, based on factors such as the assumed land use and the physical characteristics (e.g., important surface features, soils, geology, hydro geology, meteorology, and ecology) at the site. This guidance does not alter the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) expectations regarding treatment of principal threat waste and the use of containment and institutional controls for low level threat waste.

²Since radon is not covered in some Federal radiation regulations it is important to note that the cleanup guidance clarifications in this memorandum include radon. Attachment A is a listing of standards for radionuclides (including radon) that may be applicable or relevant and appropriate requirements (ARARs) for Superfund sites.



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This document provides guidance to EPA staff. It also provides guidance to the public and to the regulated community on how EPA intends that the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) be implemented. The guidance is designed to describe EPA's national policy on these issues. The document does not, however, substitute for EPA's statutes or regulations, nor is it a regulation itself. Thus, it cannot impose legally-binding requirements on EPA, States, or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA may change this guidance in the future, as appropriate.

BACKGROUND

All remedial actions at CERCLA sites must be protective of human health and the environment and comply with Applicable or Relevant and Appropriate Requirements (ARARs) unless a waiver is justified. Cleanup levels for response actions under CERCLA are developed based on site-specific risk assessments, ARARs, and/or to-be-considered material³ (TBCs).

A listing is attached of radiation standards that are likely to be used as ARARs to establish cleanup levels or to conduct remedial actions. Cleanup standards have been under development by EPA under the Atomic Energy Act (AEA) and will be ARARs under certain circumstances if issued.

ARARs are often the determining factor in establishing cleanup levels at CERCLA sites. However, where ARARs are not available or are not sufficiently protective, EPA generally sets site-specific remediation levels for: 1) carcinogens at a level that represents an excess upper bound lifetime cancer risk to an individual of between 10^{-4} to 10^{-6} ; and for 2) non-carcinogens such that the cumulative risks from exposure will not result in adverse effects to human populations (including sensitive sub-populations) that may be exposed during a lifetime or part of a lifetime, incorporating an adequate margin of safety. (See 40 CFR 300.430(e)(2)(i)(A)(2).) Since all radionuclides are carcinogens, this guidance addresses carcinogenic risk. If non-carcinogenic risks are posed by specific radionuclides, those risks should be taken into account in establishing cleanup levels or suitable remedial actions. The site-specific level of cleanup is determined using the nine criteria specified in Section 300.430(e)(9)(iii) of the NCP.

³To-be-considered material (TBCs) are non-promulgated advisories or guidance issued by Federal or State governments that are not legally binding and do not have the status of potential ARARs. However, TBCs will be considered along with ARARs as part of the site risk assessment and may be used in determining the necessary level of cleanup for protection of health and the environment.

It is important to note that a new potential ARAR was recently promulgated : NRC's Radiological Criteria for License Termination (See 62 FR 39058, July 21, 1997). We expect that NRC's implementation of the rule for License Termination (decommissioning rule) will result in cleanups within the Superfund risk range at the vast majority of NRC sites. However, EPA has determined that the dose limits established in this rule as promulgated generally will not provide a protective basis for establishing preliminary remediation goals (PRGs) under CERCLA.⁴ The NRC rule set an allowable cleanup level of 25 millirem per year (equivalent to approximately 5×10^{-4} increased lifetime risk) as the primary standard with exemptions allowing dose limits of up to 100 millirem per year (equivalent to approximately 2×10^{-3} increased lifetime risk). Accordingly, while the NRC rule standard must be met (or waived) at sites where it is applicable or relevant and appropriate, cleanups at these sites will typically have to be more stringent than required by the NRC dose limits in order to meet the CERCLA and NCP requirement to be protective.⁵ Guidance that provides for cleanups outside the risk range (in general, cleanup levels exceeding 15 millirem per year which equates to approximately 3×10^{-4} increased lifetime risk) is similarly not protective under CERCLA and generally should not be used to establish cleanup levels.

The lack of a protective comprehensive set of regulatory cleanup levels for radiation, together with the possibility of confusion as to the status of other Federal Agency regulations and guidance as ARARs or TBCs, may cause uncertainty as to the cleanup levels deemed protective under CERCLA. Until a protective comprehensive radiation cleanup rule is available, this guidance clarifies the Agency's position on CERCLA cleanup levels for radiation.

OBJECTIVE

This guidance clarifies that cleanups of radionuclides are governed by the risk range for all carcinogens established in the NCP when ARARs are not available or are not sufficiently protective. This is to say, such cleanups should generally achieve risk levels in the 10^{-4} to 10^{-6} range. EPA has a consistent methodology for assessing cancer risks and determining PRGs at CERCLA sites no matter the type of contamination.⁶

⁴See letter, Carol Browner, Administrator, EPA, to Shirley Jackson, Chairman, Nuclear Regulatory Commission, February 7, 1997.

⁵See attachment B for a detailed discussion of the basis for the conclusion that the dose limits in the NRC rule are not adequately protective.

⁶U.S. EPA, "Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A) Interim Final," EPA/540/1-89/002, December 1989. U.S. EPA, "Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part B, Development of Risk-based Preliminary Remediation Goals)," EPA/540/R-92/003, December 1991.

Cancer risks for radionuclides should generally be estimated using the slope factor approach identified in this methodology. Slope factors were developed by EPA for more than 300 radionuclides in the *Health Effects Assessment Summary Tables* (HEAST).⁷ Cleanup levels for radioactive contamination at CERCLA sites should be established as they would for any chemical that poses an unacceptable risk and the risks should be characterized in standard Agency risk language consistent with CERCLA guidance.

Historically, radiation exposure and cleanup levels have often been expressed in units unique to radiation (e.g., millirem or picoCuries). It is important for the purposes of clarity that a consistent set of existing risk-based units (i.e., # $\times 10^{-6}$) for cleanups generally be used. This will also allow for ease and clarity of presenting cumulative risk for all contaminants, an objective consistent with EPA's policy on risk characterization.⁸

Cancer risk from both radiological and non-radiological contaminants should be summed to provide risk estimates for persons exposed to both types of carcinogenic contaminants. Although these risks initially may be tabulated separately, risk estimates contained in proposed and final site decision documents (e.g., proposed plans, Record of Decisions (RODs), Action Memos, ROD Amendments, Explanation of Significant Differences (ESDs)) should be summed to provide an estimate of the combined risk to individuals presented by all carcinogenic contaminants.

IMPLEMENTATION

The approach in this guidance should be considered at current and future CERCLA sites for which response decisions have not been made.

Overall Exposure Limit:

Cleanup should generally achieve a level of risk within the 10^{-4} to 10^{-6} carcinogenic risk range based on the reasonable maximum exposure for an individual. The cleanup levels to be specified include exposures from all potential pathways, and through all media (e.g., soil, ground water, surface water, sediment, air, structures,

⁷U.S. EPA, "Health Effects Assessment Summary Tables FY-1995 Annual," EPA/540/R-95/036, May 1995; and U.S. EPA, "Health Effects Assessment Summary Tables FY-1995 Supplement," EPA/540/R-95/142, Nov. 1995.

⁸For further discussion of EPA's policy, see memorandum from EPA Administrator Carol Browner entitled: "EPA Risk Characterization Program," March 21, 1995.

biota). As noted in previous policy, "the upper boundary of the risk range is not a discrete line at 1×10^{-4} , although EPA generally uses 1×10^{-4} in making risk management decisions. A specific risk estimate around 10^{-4} may be considered acceptable if justified based on site-specific conditions".⁹

If a dose assessment is conducted at the site¹⁰ then 15 millirem per year (mrem/yr) effective dose equivalent (EDE) should generally be the maximum dose limit for humans. This level equates to approximately 3×10^{-4} increased lifetime risk and is consistent with levels generally considered protective in other governmental actions, particularly regulations and guidance developed by EPA in other radiation control programs.¹¹

Background Contamination:

Background radiation levels will generally be determined as background levels are determined for other contaminants, on a site-specific basis. In some cases, the same constituents are found in on-site samples as well as in background samples. The levels of each constituent are compared to background to determine its impact, if any, on site-related activities. Background is generally measured only for those radionuclides that are contaminants of concern and is compared on a contaminant specific basis to cleanup level. For example, background levels for radium-226 and radon-222 would generally not be evaluated at a site if those radionuclides were not site-related contaminants.

⁹Memo from Assistant Administrator Don Clay to the Regions; "Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions" OSWER Directive 9355.0-30; April 22, 1991.

¹⁰Cleanup levels not based on ARARs should be expressed as risk, although levels may at the same time be expressed in millirem.

¹¹Further discussion and analysis of the basis for this recommendation is contained in the materials in the docket for the AEA standard under development by EPA, which is available at the following address: U.S. EPA, 401 M Street, S.W., Room M1500, Air Docket No. A-93-27, Washington D.C. 20460. The material is also available via computer modem through the Cleanup Regulation Electronic Bulletin Board (800-700-7837 outside the Washington area and 703-790-0825 locally), or on-line through the Radiation Site Cleanup Regulation HomePage (<http://www.epa.gov/radiation/cleanup/>). Cleanup levels based on some older ARARs that use a 25/75/25 mrem/yr standard (i.e., 25 mrem/yr to the whole body, 75 mrem/yr to the thyroid, and 25 mrem/yr to any other critical organ) may appear to permit greater risk than those based on 15 mrem EDE but on average correspond to approximately 10 mrem/yr EDE, using current risk methodologies. Similarly, ARARs based on a 25/75 mrem/yr standard used as an ARAR (i.e., 25 mrem/yr to whole body and 75 mrem/yr to any critical organ) would on average correspond to those cleanups based on 15 mrem/yr EDE. (See also "Comparison of Critical Organ and EDE Radiation Dose Rate Limits for Situations Involving Contaminated Land;" Office of Radiation and Indoor Air; April 1997.) See also Attachment B.

In certain situations background levels of a site-related contaminant may equal or exceed PRGs established for a site. In these situations background and site-related levels of radiation will be addressed as they are for other contaminants at CERCLA sites.¹²

Land Use and Institutional Controls:

The concentration levels for various media that correspond to the acceptable risk level established for cleanup will depend in part on land use at the site. Land uses that will be available following completion of a response action are determined as part of the remedy selection process considering the reasonably anticipated land use or uses along with other factors.¹³ Institutional controls (ICs) generally should be included as a component of cleanup alternatives that would require restricted land use in order to ensure the response will be protective over time. The institutional controls should prevent an unanticipated change in land use that could result in unacceptable exposures to residual contamination, or at a minimum, alert future users to the residual risks and monitor for any changes in use.

Future Changes in Land Use:

Where waste is left on-site at levels that would require limited use and restricted exposure to ensure protectiveness, EPA will conduct reviews at least once every five years to monitor the site for any changes including changes in land use. Such reviews should analyze the implementation and effectiveness of any ICs with the same degree of care as other parts of the remedy. Should land use change in spite of land use

¹²For further information regarding EPA's approach for addressing background at CERCLA sites see: National Oil and Hazardous Substances Pollution Contingency Plan, 55 FR 8717-8718, March 8, 1990; U.S. EPA "Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," EPA/540/G-88/003, December 1988, pp. 4-9; U.S. EPA "Soil Screening Guidance: User's Guide," EPA/540/R-96/018, April 1996, pp. 8; and U.S. EPA "Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A)," EPA/540/1-89/02, December 1989, pp. 4-5 to 4-10 and 5-10 to 5-19. It should be noted that certain ARARs specifically address how to factor background into cleanup levels. For example, some radiation ARAR levels are established as increments above background concentrations. (See attached chart for a listing of radiation standards that are likely to be used as ARARs.) In these circumstances, rather than follow the general guidance cited above, background should be addressed in the manner prescribed by the ARAR. ARARs, such as 40 CFR 192, are available to establish cleanup levels for those naturally occurring radionuclides that pose the most risk (such as radium-226 or Thorium in soil, and indoor radon) when those radionuclides are site related contaminants.

¹³In developing Land use assumptions, decision makers should consult the guidance provided in the memorandum from Elliott Laws A.A., OSWER entitled: "Land Use in the CERCLA Remedy Selection Process" (OSWER Directive No. 9355.7-04), May 25, 1995.

restrictions, it will be necessary to evaluate the implications of that change for the selected remedy, and whether the remedy remains protective (e.g., a greater volume of soil may need to be removed or managed to achieve an acceptable level of risk for a less restrictive land use).

Ground Water Levels:

Consistent with CERCLA and the NCP, response actions for contaminated ground water at radiation sites must attain (or waive as appropriate) the Maximum Contaminant Levels (MCLs) or non-zero Maximum Contaminant Level Goals (MCLGs) established under the Safe Drinking Water Act, where the MCLs or MCLGs are relevant and appropriate for the site. This will typically be the case where ground waters are a current or potential source of drinking water.¹⁴ The ARARs should generally be attained throughout the plume (i.e., in the aquifer).

Modeling Assessment of Future Exposures:

Risk levels, ground water cleanup, and dose limits should be predicted using appropriate models to examine the estimated future threats posed by residual radioactive material following the completion of the response action.¹⁵ The modeling assessment should: (1) assume that the current physical characteristics (e.g., important surface features, soils, geology, hydrogeology, meteorology, and ecology) will continue to exist at the site; (2) take into account for each particular radionuclide that is a site-related contaminant, the following factors:

- radioactive decay and the ingrowth of radioactive decay products when assessing risk levels;
 - the year of peak concentration in the ground water when assessing protection (e.g., remediating previous contamination and preventing future contamination) of ground water, and;
 - the year of peak dose when assessing dose limits; and,
- (3) model the expected movement of radioactive material at the site both within media (i.e., soil, ground water, surface water, sediment, structures, air, biota) and to other media.

¹⁴In making decisions on ground water protection, decision makers should consult the guidance provided in "Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites" (OSWER Directive No. 9355.7-04) October 1996.

¹⁵For further information regarding the basis for this recommendation, see U.S. EPA, "Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A) Interim Final," EPA/540/1-89/002, December 1989, pp. 10-22 and 10-24.

FURTHER INFORMATION

The subject matter specialists for this directive are Jeffrey Phillips of OERR and John Karhnak of ORIA. General questions about this directive, should be directed to 1-800-424-9346.

Attachments

Addressees

National Superfund Policy Managers
Superfund Branch Chiefs (Regions I-X)
Superfund Branch Chiefs, Office of Regional Counsel (Regions I-X)
Radiation Program Managers (Regions I, IV, V, VI, VII, X)
Radiation Branch Chief (Region II)
Residential Domain Section Chief (Region III)
Radiation and Indoor Air Program Branch Chief (Region VIII)
Radiation and Indoor Office Director (Region IX)
Federal Facilities Leadership Council
OERR Center Directors

CC:

Jim Woolford, FFRRO
Elizabeth Cotsworth, OSW
Craig Hooks, FFEO
Barry Breen, OSRE
Joanna Gibson, HOSC/OERR
Earl Salo, OGC

Attachment A:

Likely Federal Radiation Applicable or Relevant and Appropriate Requirements (ARARs)

The attached draft table of Federal standards is a listing of Federal radiation regulations that may be "Applicable or Relevant and Appropriate Requirements" (ARARs) for Superfund response actions. This list is not a comprehensive list of Federal radiation standards. It must also be cautioned that the selection of ARARs is site-specific and those site-specific determinations may differ from the attached analysis for some of the following ARARs.

Likely Federal Radiation (AEA, UMTRCA, CAA, CWA, SDWA) ARARs			
Standard	Citation	When is standard Applicable (Conduct/Operation or Level of Cleanup)	When is standard potentially a Relevant and Appropriate Requirement
Maximum contaminant levels (MCLs). Drinking water regulations designed to protect human health from the potential adverse effects of drinking water contaminants.	40 CFR 141	<i>Rarely:</i> At the tap where water will be provided directly to 25 or more people or will be supplied to 15 or more service connections.	Where ground or surface water is considered a potential or current source of drinking water
Concentration limits for liquid effluents from facilities that extract and process uranium, radium, and vanadium ores.	40 CFR 440 Subpart C	<i>Very Unlikely:</i> Applies to surface water discharges from certain kinds of mines and mills	Discharges to surface waters of some kinds of radioactive waste.

Likely Federal Radiation (AEA, UMTRCA, CAA, CWA, SDWA) ARARs			
Standard	Citation	When is standard Applicable (Conduct/Operation or Level of Cleanup)	When is standard potentially a Relevant and Appropriate Requirement
Federal Water Quality Criteria (FWQC) and State Water Quality Standards (WQS). Criteria/standards for protection of aquatic life and/or human health depending upon the designated water use.	Water Quality Criteria; Report of the National Technical Advisory Committee to the Secretary of the Interior; April 1, 1968.	Discharge from a CERCLA site to surface water. (C/O)	Restoration of contaminated surface water. (LC)
Concentration limits for cleanup of radium-226, radium-228, and thorium in soil at inactive uranium processing sites designated for remedial action. ¹	40 CFR 192.12(e), 192.32(b)(2), and 192.41	Never. Standards are applicable only to UMTRCA sites that are exempt from CERCLA	Sites with soil contaminated with radium-226, radium-228, and/or thorium

¹For further information, see OSWER directive entitled "Use of Soil Cleanup Criteria in Subpart B of 40 CFR Part 192 as Remediation Goals for CERCLA sites."

Likely Federal Radiation (AEA, UMRCA, CAA, CWA, SDWA) AEARs			
Standard	Citation	When is standard Applicable (Conduct/Operation or Level of Cleanup)	When is standard potentially a Relevant and Appropriate Requirement
Combined exposure limits for cleanup of radon decay products in buildings at inactive uranium processing sites designated for remedial action	40 CFR 192.12(b)(1) and 192.41(b)	Never: Standards are applicable only to UMRCA sites that are exempt from CERCLA	Sites with radioactive contamination that is currently, or may potentially, result in radon that is caused by site related contamination migrating from the soil into buildings
Concentration limits for cleanup of gamma radiation in buildings at inactive uranium processing sites designated for remedial action	40 CFR 192.12(b)(2)	Never: Standards are applicable only to UMRCA sites that are exempt from CERCLA	Sites with radioactive contamination that is currently, or may potentially, emit gamma radiation
Design requirements for remedial actions that involve disposal for controlling combined releases of radon-220 and radon-222 to the atmosphere at inactive uranium processing sites designated for remedial action	40 CFR 192.02	Never: Standards are applicable only to UMRCA sites that are exempt from CERCLA	Sites with radon-220 or radon-222 as contaminants which will be disposed of on-site.

Likely Federal Radiation (AEA, UMTRCA, CAA, CWA, SDWA) ARARs			
Standard	Citation	When is standard Applicable (Conduct/Operation or Level of Cleanup)	When is standard potentially a Relevant and Appropriate Requirement
Performance objectives for the land disposal of low level radioactive waste (LLW).	10 CFR 61.41	<i>Unlikely:</i> Existing licensed LLW disposal sites at the time of license renewal. (LC) <i>Unlikely that this would occur.</i>	Previously closed sites containing LLW if the waste will be permanently left on site.
National Emission Standards for Hazardous Air Pollutants (NESHAPs) under the Clean Air Act, that apply to radionuclides.	40 CFR 61 Subparts H and I	Airborne emissions during the cleanup of Federal Facilities and licensed NRC facilities. (CO)	Cleanup of other sites with radioactive contamination.
Radiological criteria for license termination.	10 CFR 20 Subpart E	Existing licensed sites at the time of license termination. (LC)	Previously closed sites.

1. Conduct/operation (C/O) refers to those standards which are typically ARARs for the conduct of operation of the remedial action. Level of Cleanup (L/C) refers to those standards which are typically ARARs for determining the final level of cleanup.

August 20, 1997

Attachment B:

**Analysis of what Radiation Dose Limit
is Protective of Human Health
at CERCLA Sites
(Including Review of Dose Limits in
NRC Decommissioning Rule)**

Introduction

The Nuclear Regulatory Commission ("NRC") has finalized a rule titled "Radiological Criteria for License Termination" (see 62 FR 39058, July 21, 1997). EPA has determined that the dose limits established in this rule generally will not provide a protective basis for establishing preliminary remediation goals ("PRGs") under the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA").¹ The NRC rule sets an allowable cleanup level of 25 millirem per year effective dose equivalent (EDE) (equivalent to approximately 5×10^{-4} lifetime cancer risk) as the primary standard with exemptions allowing cleanup levels of up to 100 millirem per year (mrem/yr) EDE (equivalent to approximately 2×10^{-3} lifetime risk).² While the NRC standards must be met (or waived) at sites where it is applicable or relevant and appropriate, cleanups at these sites will typically have to be more protective than required by the NRC rule dose limits in order to meet the requirement to be protective established in CERCLA and the 1990 revisions to the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP").³

Protectiveness for carcinogens under CERCLA is generally determined with reference to a cancer risk range of 10^{-4} to 10^{-6} deemed acceptable by EPA. Consistent with this risk range, EPA has considered cancer risk from radiation in a number of different contexts, and has consistently concluded that levels of 15 mrem/yr EDE (which

¹See letter, Carol Browner, Administrator, EPA, to Shirley Jackson, Chairman, Nuclear Regulatory Commission, February 7, 1997.

²Throughout this analysis risk estimates for dose levels were derived using a risk assessment methodology consistent with CERCLA guidance for assessing risks.

³Similarly, guidance that provides for radiation cleanups outside the risk range is generally not protective and should not be used to establish preliminary remediation goals.

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equate to approximately a 3×10^{-4} cancer risk) or less are protective and achievable.⁴ EPA has explicitly rejected levels above 15 mrem/yr EDF as being not sufficiently protective.

The dose levels established in the NRC Decommissioning rule, however, are not based on this risk range or on an analysis of other achievable protective cleanup levels used for radiation and other carcinogenic standards. Rather, they are based on a different framework for risk management recommended by the International Commission on Radiation Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP). NRC's application of this framework starts with the premise that exposure to radiation from all man-made sources, excluding medical and natural background exposures, of up to 100 mrem/yr., which equates to a cancer risk of 2×10^{-3} , is acceptable. Based on that premise, it concludes that exposure from decommissioned facilities of 25 mrem/yr, which equates to a cancer risk of approximately 5×10^{-4} , is acceptable, and allows the granting of exceptions in certain instances permitting exposure up to the full dosage of 100 mrem/yr from these facilities. EPA has carefully reviewed the basis for the NRC dose levels and does not believe they are generally protective within the framework of CERCLA and the NCP. Simply put, NRC has provided, and EPA is aware of, no technical, policy, or legal rationale for treating radiation risks differently from other risks addressed under CERCLA and for allowing radiation risks so far beyond the bounds of the CERCLA risk range.

⁴It should be noted that 15 mrem/yr is a dose level, not a media remediation level. Accordingly, this level could be achieved at CERCLA sites through appropriate site-specific combinations of active remediation and land-use restrictions to ensure no unacceptable exposures.

August 20, 1997

1. Rationale for 15 mrem/yr as Minimally Acceptable Dose Limit

To determine an acceptable residual level of risk from residual radioactive materials following a response action that would be protective of human health, EPA examined the precedents established by EPA for acceptable exposures to radiation in regulations and site-specific cleanup decisions in light of the CERCLA risk range for carcinogens. EPA's conclusion is that to be considered protective under CERCLA, remedial actions should generally attain dose levels of no more than 15 mrem/yr EDE for those sites at which a dose assessment is conducted. This dose level corresponds to an excess lifetime cancer risk of approximately 3×10^{-4} .

1.1 The CERCLA risk range

Under CERCLA, all remedies are required to attain cleanup levels that "at a minimum . . . assure protection of human health and the environment." CERCLA §121(d)(1). The NCP provides that, for carcinogens, preliminary remediation goals should generally be set at levels that represent an upper-bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} . 40 CFR § 300.430(e)(2)(I)(A)(1). This regulatory level was set based on EPA's conclusion that the CERCLA protectiveness mandate is complied with "when the amount of exposure is reduced so that the risk posed by contaminants is very small, i.e., at an acceptable level. EPA's risk range of 10^{-4} to 10^{-6} represents EPA's opinion on what are generally acceptable levels." 55 Fed. Reg. at 8716 (March 8, 1990). EPA's adoption of this risk range was sustained in judicial review of the NCP. *State of Ohio v. EPA*, 997 F.2d 1520, 1533 (D.C. Cir. 1993).

Under appropriate circumstances, risks of greater than 1×10^{-4} may be acceptable. CERCLA guidance states that "the upper boundary of the risk range is not a discrete line at 1×10^{-4} , although EPA generally uses 1×10^{-4} in making risk management decisions. A specific risk estimate around 10^{-4} may be considered acceptable if justified based on site-specific conditions."⁵ Other EPA regulatory programs have developed a similar approach to determining acceptable levels of cancer risk. For example, in a Clean Air Act rulemaking establishing NESHAPs for NRC licensees, Department of Energy facilities, and many other kinds of sites, EPA concluded that a risk level of " 3×10^{-4} is essentially equivalent to the presumptively safe level of 1×10^{-4} ." 54 Fed. Reg. at 51677 and 51682 (December 15, 1989). EPA explicitly rejected a risk level of 5.7×10^{-4} as not being equivalent to the presumptively safe level of 1×10^{-4} (in the case of elemental phosphorus plants) in this rulemaking. 54 Fed. Reg. at 51670.

⁵Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions" from EPA Assistant Administrator Don R. Clay, April 22, 1991.

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1.2 Prior rulemaking decisions

EPA has examined the protectiveness of various radiation levels on a number of occasions. In each case, EPA's determination of what constitutes an adequate level of protection was reached in a manner consistent with EPA's regulation of other carcinogens. The conclusions from these efforts support the determination that 15 mrem/yr EDE should generally be the maximum dose level allowed at CERCLA sites. For example, EPA's Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes ("High-Level Waste Rule," 40 CFR Part 191) sets a dose limit of 15 mrem/yr EDE for all pathways.

In addition, EPA set an effective dose equivalent of 10 mrem/yr EDE (excluding radon-222) for air emissions of radionuclides from federal facilities, NRC licensees, and uranium fuel cycle facilities under the National Emissions Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Part 61). This lower limit included all air pathways, but excluded releases to surface and ground waters.

Not all EPA rules apply the current dose methodology of effective dose equivalent (EDE). A dose limit of 15 mrem/yr EDE is also consistent with the dose levels allowed under older multi-media standards that were based on the critical organ approach to dose limitation. Critical organ standards developed by EPA and NRC consist of a combination of whole body and critical organ dose limits. Three of these critical organ standards (EPA's uranium fuel cycle rule, 40 CFR 190.10(a), developed for NRC licensees; NRC's low level waste rule, 10 CFR 61.41; and EPA's management and storage of high level waste by NRC and agreement states rule, 40 CFR 191.03(a)), referred to here as '25/75/25 mrem/yr' dose limits, are expressed as 25 mrem/yr to the whole body, 75 mrem/yr to the thyroid, and 25 mrem/yr to any critical organ other than the thyroid. One standard (EPA's management and storage of high level waste by DOE rule, 40 CFR 191.03(b)), referred to here as a "25/75 mrem/yr" dose limit, is expressed as 25 mrem/yr to the whole body and 75 mrem/yr to any critical organ (including the thyroid). To compare the dose level allowed under standards expressed in terms of EDE with the dose levels allowed under the critical organ approach to dose limitation, EPA has analyzed the estimated effective dose equivalent levels that would result if sites were cleaned up to the numerical dose limits used in these standards.⁶ The analysis indicates that if sites were cleaned up under a 25/75/25 mrem/yr dose limit, the residual contamination would correspond to approximately 10 mrem/yr EDE. For sites cleaned up under a 25/75 mrem/yr dose limit, the residual contamination would correspond to approximately 15

⁶Comparison of Critical Organ and EDE Radiation Dose Rate Limits for Situations Involving Contaminated Land" Office of Radiation and Indoor Air, April 1997.

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mrem/yr EDE. These findings are similar to those mentioned in the preamble to the high-level waste rule (40 CFR Part 191; December 20, 1993; 58 FR 66402). In that rulemaking, EPA noted that the dose limit of 25 mrem/yr to the whole body or 75 mrem/yr to any critical organ, which was used in a previous high-level waste rule (September 19, 1985; 50 FR 38066) corresponds to the same level of risk as that associated with a 15 mrem/yr EDE. A cleanup level of 15 mrem/yr EDE is thus generally consistent with all of these other standards, although there are minor differences.

Finally, standards for the cleanup of certain radioactively contaminated sites have been issued under the Uranium Mill Tailings Radiation Control Act (UMTRCA), P.L. 95-604. Those standards are codified at 40 CFR Part 192. Among other provisions, the UMTRCA standards limit the concentration of radium-226, radium-228, thorium-230 and thorium-232, within 15 centimeters (cm) of the surface to no more than 5 pCi/g over background. They also limit the concentration of these radionuclides below the surface to no more than 15 pCi/g over background. Since these standards were developed for the specific conditions found at the mill sites to which they apply (for example, all mill sites are required by law to remain in federal control), correlating these concentrations to dose requires a site-specific determination considering both the distribution and nature of contaminants at the site and the selected land use. Therefore, those standards are less relevant for determining if 15 mrem/yr EDE is consistent. However, analysis indicates that the cleanup of UMTRCA sites is consistent with the minimally acceptable dose limit of 15 mrem/yr EDE under a residential exposure scenario for radium-226, radium-228, and thorium-232, and is much more stringent for thorium-230.⁷ For land uses other than residential (e.g., commercial/industrial, recreational) the UMTRCA cleanup standards are more stringent for all four radionuclides.⁸

1.3 Site-Specific Decisions

EPA has examined the cleanup decisions made under Superfund to address sites contaminated with radioactive wastes. Many of these cleanup actions used the UMTRCA

⁷ *Reassessment of Radium and Thorium Soil Concentrations and Annual Dose Rates*. Office of Radiation and Indoor Air, July 22, 1996.

⁸ A level of 15 mrem/yr is also supported by EPA's draft Federal Radiation Protection Guidance for Exposure of the General Public (59 FR 66414, December 23, 1994). The draft guidance recommends that the maximum dose to individuals from specific sources or categories of sources be established as small fractions of a 100 mrem/yr upper bound on doses from all current and potential future sources combined, and cites the regulations that are discussed in Section 1.2 of this paper as appropriate implementation of this recommendation. All of the regulatory examples cited support the selection of cleanup levels at 15 mrem/yr or less. However, because this guidance is in draft form and is subject to continued review within EPA prior to finalization, it should not be used as a basis for establishing acceptable cleanup levels.

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cleanup standard (40 CFR Part 192) as an ARAR. Some of the sites used State regulations as ARARs. For a number of major DOE cleanup actions such as those at the Hanford reservation and Rocky Flats, a 15 mrem/yr EDE cleanup level has been decided upon or proposed. In other cases of CERCLA radiation cleanup actions that are not based on ARARs, cleanup levels between 1×10^{-5} and 1×10^{-6} have been selected (Bomark, NJ; Fernald, OH; Charleston Naval Shipyard, SC; and Mare Island Naval Shipyard, CA). Overall EPA finds that a 15 mrem/yr EDE level (with a risk of 3×10^{-4}) is at the upper end of remediation levels that have generally been selected at radioactively contaminated CERCLA sites.

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2.0 Dose Limits in NRC's Rule are not Protective

EPA reviewed the dose limits that are contained in NRC's Radiological Criteria for License Termination (see 62 FR 39058, July 21, 1997). The NRC rule allows a cleanup level of 25 mrem/yr EDE (equivalent to approximately 5×10^{-4} lifetime risk) with exemptions allowing cleanup levels of up to 100 mrem/yr EDE (equivalent to approximately 2×10^{-3} lifetime risk). These limits are beyond the upper bound of the risk range generally considered protective under CERCLA. In addition, they present risks that are higher than levels EPA has found to be protective for carcinogens in general and for radiation, in particular, in other contexts. EPA has no technical or policy basis to conclude that these levels are protective under CERCLA.

The risk levels corresponding to the 25 to 100 mrem/yr EDE range allowed by the NRC rule (5×10^{-4} to 2×10^{-3}) are unacceptably high relative to 1×10^{-4} , which is the risk level generally used as the upper boundary of the CERCLA risk range for making risk management decisions at CERCLA sites. This determination is consistent with EPA's explicit rejection of a risk level of 5.7×10^{-4} for elemental phosphorus plants in the preamble for a NESHAP rulemaking (54 FR 51670). In the same preamble, EPA stated that a risk level of 3×10^{-4} is essentially equivalent to the presumptively safe level of 1×10^{-4} (54 FR 51677). It was during this same NESHAP rulemaking that NCRP first recommended to EPA its regulatory scheme (a dose limit of 25 mrem/yr EDE for a single source that if met would not require analyzing other sources, otherwise a dose limit of 100 mrem/yr EDE from all sources combined) that NRC cites as a source for the regulatory approach taken in its decommissioning rule.⁹ EPA rejected NCRP's recommended regulatory scheme, and promulgated dose limits of no more than 10 mrem/yr EDE in its NESHAP rulemaking for radionuclides, while concluding that "individual dose levels greater than 10 mrem/yr ede are inconsistent with the requirements of section 112" of the Clean Air Act. 54 Fed. Reg. at 51686.

The documentation and analysis supporting the NRC rule dose levels provide no basis for such a significant departure from the CERCLA risk range. Indeed, as discussed above, EPA's past analyses and experience have demonstrated that exposures of 15 mrem/yr EDE or less are attainable and that such a departure is unwarranted. A dose limit of 25 mrem/yr EDE represents almost a doubling of the allowable risk from previous radiation rulemakings; the risk represented by a dose limit of 100 mrem/yr EDE is seven times as high as previously allowed. As note in Section 1.2, a dose limit of 25 mrem/yr effective dose equivalent is inconsistent with the dose levels allowed under older

⁹"Control of Air Emissions of Radionuclides" NCRP Position Statement No. 6. The report cited by NRC, NCRP No. 116, merely references this previous NCRP position statement.

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standards using a previous dose methodology (multi-media standards that were based on the critical organ approach to dose limitation). If these older dose standards were to be applied to the cleanup of contaminated sites, the average dose level would correspond to approximately 10 or 15 mrem/yr EDE on average.¹⁰ Also, analysis indicates that the cleanup of UMTRCA sites using the 5 pCi/g and 15 pCi/g soil standards under 40 CFR 192 is consistent with an upper bound of 15 mrem/yr EDE under a rural residential exposure scenario for radium-226, radium-228, and thorium-232, and is much more stringent for thorium-230.¹¹ For land uses other than residential (e.g., commercial/industrial, recreational) the UMTRCA cleanup standards are more stringent for all four radionuclides.

¹⁰Comparison of Critical Organ and EDE Radiation Dose Rate Limits for Situations Involving Contaminated Land" Office of Radiation and Indoor Air; April 1997.

¹¹Reassessment of Radium and Thorium Soil Concentrations and Annual Dose Rates. Office of Radiation and Indoor Air, July 22, 1996.