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UNCERTAINTIES AND CHALLENGES --
A TIME TO WORK TOGETHER

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PRESENTED AT
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Introduction

Good morning, ladies and gentlemen. It is a real pleasure to have the opportunity to address you at this annual meeting of the Appalachian Compact Users of Radioactive Isotopes (ACURI). When I was asked to be the keynote speaker for your annual meeting, I decided to look into the bylaws of your organization. I found them to be most interesting. For those of you who might not be able to recite them from memory, let me repeat a couple here. ACURI is to:

- (1) promote safe, effective, and efficient disposal of low-level radioactive waste ("LLRW" within and among the Appalachian Compact states of Pennsylvania, Maryland, Delaware and West Virginia;
- (2) provide a forum for the users of radiation technology to review and discuss regulatory, legislative and technology developments with an emphasis on LLRW disposal and management issues which may affect the use of such technology; and
- (3) monitor, study, disseminate information on and take public positions on existing and proposed laws, rules and regulations concerning the management and disposal of LLRW.

There are others but I won't repeat them here. In looking over these bylaws, I found a lot of common goals and interests that your organization and the NRC have, although they come at them from perhaps somewhat different perspectives. The NRC's principal mission is to ensure that the civilian uses of nuclear materials and facilities are conducted in a manner consistent with public health and safety, environmental quality and National security. When the goals, objectives, and missions of the two organizations are examined, one common goal stands out -- the safe, effective, and efficient disposal of low-level radioactive wastes.

Background

As a Commissioner of the NRC, I, of course, have a great deal of professional interest in following the progress that the Appalachian States Compact and ACURI are making toward the siting, design, construction, and operation of a low-level waste disposal facility. But I also have a personal interest in the progress that is being made toward the development of a low-level waste facility in the Appalachian Compact region. I was born and raised in Lock Haven, Pennsylvania, just to the northwest of here. With the exception of about eight years spent in Austria, New Jersey, Washington, DC, and Tennessee, I have lived in State College, Pennsylvania, during most of my professional career. While I was at Penn State, I was both a licensee and a licensee's representative before the Atomic Energy Commission and the Nuclear Regulatory Commission. Penn State had a reactor license, by-product material licenses, source material licenses, and special nuclear material licenses for which I had either direct responsibility or indirect administrative responsibility. So I can empathize with the challenges you face as radioactive waste generators, particularly the challenge of developing a low-level radioactive waste facility. In fact, in 1963, I headed a research group established at the request of Cliff Jones, who at that time was Pennsylvania's Secretary of Commerce, to study the need for developing a low-level waste disposal facility in Pennsylvania. At that time, our group concluded that, because low-level waste facilities were already available at Maxey Flats in Kentucky and West Valley in New York, and those facilities had adequate capacity to handle Pennsylvania's low-level radioactive wastes at relatively low cost, there was no need at that time for Pennsylvania to develop its own low-level waste facility. So, you can see that I have a long history, perhaps longer than I'd like to admit, with the types of activities that ACURI is involved with.

Supreme Court Decision

I found the title of this year's annual meeting, "Siting Uncertainties and User-Generator Challenges," to be not only interesting but somewhat prophetic. With the June 19 Supreme Court decision that rendered the take-title provision of the Low-Level Radioactive Waste Policy Amendments Act of 1985 unconstitutional, we have probably entered into a period in which there will be many uncertainties in the siting of low-level waste facilities, perhaps more than in any period since the Act became law in 1985. Until recently, most States and Compacts have been making reasonable progress toward the development of low-level radioactive waste facilities and have been complying with the milestones that were set forth in the Act. Some States and Compacts that did not meet some

of the milestones, such as your Compact, appeared to be on a reasonable schedule that was not too out-of-line with the schedules established by the Act. We are now, as the title to your annual meeting indicates, in a period of great uncertainty with regard to the siting of low-level waste facilities.

The uncertainties result primarily from how States and Compacts might respond to the Supreme Court's decision. The Court concluded that the "take-title" provision (Section 5(d)(2)(C) of the Act) exceeds the powers of Congress and is inconsistent with the Tenth Amendment of the Constitution. However, the Court determined that the remainder of the Act remain in force. Section 5(d)(2)(C) of the Act provided, in part, that

If a State (or where applicable, a compact region) in which low-level radioactive waste is generated is unable to provide for the disposal of all such waste generated within such State or compact region by January 1, 1996, each State in which waste is generated, upon the request of the generator or owner of the waste, shall take title to the waste, be obligated to take possession of the waste, and shall be liable for all damages directly or indirectly incurred by such generator or owner as a consequence of the failure of the State to take possession of the waste as soon after January 1, 1996, as the generator or owner notifies the State that the waste is available for shipment.

Many believed that this provision provided the "teeth" in the Act and would result in the establishment of operating low-level radioactive waste disposal facilities by 1996, or shortly thereafter, by most Compacts or States. Clearly, without the take-title provision, the likelihood of having low-level waste disposal facilities is less certain.

But I would encourage you to not let the elimination of the take-title provision from the Act lessen your resolve to design, site, construct, and operate a low-level waste disposal facility in the Appalachian Compact. While there may be some truth to the argument that the take-title provision added "teeth" to the Act, there is no reason why States and Compacts should not continue to act responsibly and respond to the needs of the generators in their State or Compact region, as most have done for the past seven years. The siting process for waste disposal facilities should continue. The Act clearly laid out the roles and responsibilities of the various parties involved in the management and disposal of low-level radioactive waste in this country. We should all continue to do our part to assure the success of the program.

During this past summer, I had the opportunity to visit several low-level radioactive waste disposal facilities. Two of the most interesting were located in France and Spain. The programs at these two sites offer a standard of what can be accomplished when the waste generator, facility developer, and national regulator work together in a cooperative way.

Centre de l'Aube Facility

The French facility, called the Centre de l'Aube, is located about 120 miles east of Paris and is an engineered, near-surface disposal facility. It was granted authority to receive waste on December

24, 1991, and received its first low-level waste shipments on January 13, 1992. The French authorities stated that they expect to emplace about 7,000 cubic meters (250,000 cubic feet) of low-level radioactive waste at the facility by the end of 1992.

The site occupies about 250 acres of land of which about one-third is devoted to the disposal site itself. The total waste disposal capacity of the facility will be about 1 million cubic meters (35 million cubic feet) of waste. This capacity would be enough to accommodate the low-level radioactive waste disposal needs in the United States for about 30 years at current waste generation rates. The Centre de l'Aube facility is replacing the Centre de la Manche, located about 100 miles northwest of Paris, at La Hague. The French plan is to close the la Manche facility in 1994 when its capacity reaches about 500,000 cubic meters (17 million cubic feet) of low-level waste.

At the Centre de l'Aube, radioactive waste packages are placed in engineered disposal structures resembling concrete vaults (25 x 25 x 8 meters) which are covered by a movable building during the emplacement operation. After the waste has been placed in the disposal vault, the structure is stabilized by filling the spaces between the waste packages with concrete or gravel.

When a disposal vault is full, it is covered with a concrete slab and sealed with a polyurethane coating. The movable building is then moved over the next disposal vault to be filled.

As the disposal vaults are filled and sealed, the spaces between the vaults are filled with earth. When the facility is to be permanently closed, a final cap made up of multiple layers of clay, bitumen, sand, and topsoil planted with grass, will be placed over the vaults.

The French will operate a network of galleries underneath the disposal structures to verify the effectiveness of the waste isolation system and to collect and treat any seepage.

El Cabril Facility

The El Cabril facility in Spain, which is located about 55 miles northeast of Seville and about 80 miles northwest of Cordoba, is in many ways similar to the French facility at Centre de l'Aube. The facility is made up of some 28 concrete vaults which are covered by a movable building during the waste emplacement operation. The facility will have a capacity for about 58,000 m³ (2,000,000 ft³) of low-level radioactive waste. Perhaps the single biggest difference between the Centre de l'Aube and El Cabril designs is that at El Cabril, waste drums, most with a 220-liter capacity, will be placed in cubical concrete containers which will weigh 24-metric tons. Each of the 28 vaults can hold 320 concrete containers. The French design does not use the concrete block system but instead simply has the individual waste drums emplaced in the vaults. At El Cabril, once a vault is filled with the concrete containers, an upper sealing slab is installed and made watertight with a synthetic cover. When the vaults are filled, an earthen cover, again similar to the French design, will be used to prevent any infiltration of water into the vaults. The El Cabril facility also has a gallery system whose function is to collect any water that may have seeped in through the cover and channel it to

the Seepage Control System where the location of the seepage can be pinpointed and corrective actions taken if necessary.

When I was at the El Cabril facility, the officials at ENRESA (the governmental authority responsible for radioactive waste disposal in Spain) were awaiting regulatory approval from the Nuclear Safety Council (the Spanish nuclear regulatory body) to receive waste at the site for permanent disposal.

As you can see, the construction is high-quality, the technical design is advanced, and the operators have a high regard for operational details. However, at both the Centre de l'Aube and El Cabril facilities, two other aspects of these facilities stuck me as particularly important for you who are involved in developing a low-level waste disposal facility. First, in neither France nor Spain was there a law that was the equivalent of the Low-Level Radioactive Waste Policy Amendments Act of 1985 in the United States. The Centre de l'Aube and El Cabril facilities were sited, designed, constructed, and, in the case of Centre de l'Aube, operated without any of the legislated milestones, incentives, surcharges, and other inducements and penalties that are set forth in our Act. The impressive effort and facilities in France and in Spain are the result of cooperative dedicated efforts by the governments and the regulators to carry out their responsibilities to meet the needs of the generators. I am not implying that the Low-Level Waste Policy Amendments Act of 1985 is deficient or unwarranted. Indeed, it is a sound piece of legislation which, if followed, should clearly have led to adequate waste disposal facilities for radioactive waste generators around 1996. The point is that the Supreme Court's decision to strike the "take-title" provision from the Act should not deter your efforts to site and operate a low-level radioactive waste disposal facility. I noticed that the meeting agenda shows that the Supreme Court decision will be a topic for discussion tomorrow morning. I would implore all of you to seriously consider ways to continue the progress that has been made in the past by the Appalachian Compact even though the Supreme Court has severed the take-title provision from the Act.

Second, early, timely, and effective communication with the public was critical to the successful siting of the facilities. At the Centre de l'Aube, a citizens advisory committee was established early in the process of constructing the facility. The committee was provided with monthly updates on the status of the project and the committee's views were solicited prior to making major safety and environmental decisions on the project. The El Cabril facility did not have a citizens' advisory group, probably because of its rather remote location, but the officials of the facility are particularly proud that roughly 5,000 people visit the facility each year. It was clear to me that the officials at both facilities placed a high premium on having open communications with the public and being a good neighbor. This was further evidenced in the aesthetically-pleasing appearance of both facilities. It was apparent at both facilities that the designers took added measures to assure that their facility could not reasonably be referred to as a "radioactive waste dump."

I discussed the Centre de l'Aube and El Cabril facilities with you today because these are two prime examples of what can be accomplished when all parties with responsibility for the safe disposal of low-level radioactive wastes combine their efforts to assure success. In order that regulatory problems don't stand in the way of safe, effective, and timely disposal of low-level radioactive

wastes in this country, the NRC has continued to take vigorous action to strengthen and focus our regulatory program. I will not try to cover all of the NRC's low-level radioactive waste disposal initiatives with you today but there are a few that I would particularly like to mention.

Title and Possession Provision of the Act

First, as a result of the recent Supreme Court decision, on the "take-title" provision of the Act, the Commission is reconsidering a directive that it gave to the staff to prepare a proposed rule that would have required NRC licensees to document that the licensee had exhausted other waste management options, including requesting the State to take title to the waste, before the Commission would approve on-site storage of low-level radioactive waste after January 1, 1996.

Clearly, the January 1, 1996, date that the Commission used in the staff directive was driven, at least in part, by the date in the "take-title" provision of the Act. Now that the "take-title" provision has been found to be unconstitutional, the Commission is reconsidering this proposed rule. I might add, however, that the Commission does not look favorably upon long-term on-site storage of low-level radioactive wastes. So the Commission might still proceed with some type of rule that requires consideration of alternatives to storage even though the "take-title" provision of the Act is unconstitutional.

Enhanced Participatory Process

As most of you are probably aware, Section 10 of the Act directed the NRC to establish standards and procedures for acting upon petitions to exempt specific radioactive waste streams from regulation by the Commission. This entire area of regulation has been commonly referred to as "below regulatory concern" or simply "BRC."

The Commission issued two policy statements on this matter -- one in 1986 and a second in 1990 -- but both statements, and particularly the 1990 policy statement, met with considerable public and political resistance. During the summer of 1991, the Commission placed a moratorium on implementing the 1990 BRC policy statement. At that time, the Commission embarked on a "consensus-building" process that attempted to bring together all of the principal parties who had demonstrated a major interest in the BRC issue. Unfortunately, not all of the major parties were willing to participate in the process; so the Commission has now directed the staff to initiate an enhanced participatory rulemaking on the establishment of radiological criteria for decommissioning and decontamination of NRC-licensed facilities. The process for this rulemaking is intended to provide early and comprehensive input from affected interests before the NRC staff develops a draft proposed rule. The staff intends to conduct a series of workshops this fall and early next year at several locations throughout the country. I would encourage you to participate in these workshops either individually or through ACURI. Have your views heard!

Regulatory Risk Coherence

Let me turn for a moment to an area that is not directly related to low-level radioactive waste disposal but one which could affect the regulation of waste disposal. This is the subject of regulatory risk coherence. It's an area that has been of great interest to me because I was involved in the development of the Commission's Safety Goal Policy. Without going into a great amount of detail, let me summarize my views on the coherence of regulatory standards.

In recent months I have spoken both here and abroad about the usefulness of establishing a consensus standard of acceptable risk, a standard that could be applied to a wide range of regulated activities. The NRC has had for several years safety goals to use to bring more coherence to its regulation of nuclear power plants. We could do more, and are trying to do more, to implement these goals. Similar goals would be useful to all the safety agencies of the Federal government.

I hold out some hope that consensus goals can be found. There is in fact some evidence that several institutions, both public and private, foreign and domestic, are already converging, sometimes unintentionally, on the same goals. For instance, just taking the NRC alone, I have calculated that our safety goals, some of our radiation protection standards, our reactor site criteria, the ill-fated BRC criteria, and low-level waste disposal criteria all imply an annual individual risk of cancer fatality somewhere in the range of $10E-5$ to $10E-6$, even though these various criteria were established at different times, for different purposes, by different people, using different terminologies.

Without broadly applicable goals, and the habit of comparing one risk with another, we run an unacceptably high risk of misallocating scarce resources away from controlling the most significant risks.

Summary

In summary, it is incumbent on all of us whose work involves the use of radioactive materials to do our part in helping to resolve issues in a competent, fair, organized, coherent, and professional manner. All the affected parties -- waste generators, States, Compacts, DOE, and the NRC -- should continue to further the policies and goals of the Low-Level Radioactive Waste Policy Amendment Act of 1985 and assure that safe and timely waste disposal facilities are available in the near future.

In closing, I come back to the title of this year's annual meeting -- "Siting Uncertainties and User-Generator Challenges." I agree that there are many challenges and I would like to add one more. I challenge you to think positively and to continue to work towards solutions. There may be uncertainties with regard to siting, but there are no uncertainties with regard to the need for low-level waste disposal capacity in this country. Progress in siting radioactive waste disposal facilities will never be easy, but it is achievable. As I said at the outset, ACURI and the NRC have some common goals. The NRC is ready and willing to work with you to meet those goals.

Thank you very much for your attention and the opportunity to address you at your annual meeting.