



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 25, 2000

OFFICE OF THE  
COMMISSIONER

Mr. Gerry Gilligan, Legislative Assistant  
Office of Senator Jeff Sessions  
SR-493 Russell Senate Office Building  
Washington, D.C. 20510-0104

*Gerry*  
Dear Mr. Gilligan:

Thank you for making the time to meet with Commissioner Diaz and me on May 23, 2000. It was a pleasure for both of us. Please find enclosed a copy of Commissioner Diaz' speech titled "Rethinking the Dividing Lines: New Approaches for the Post-Cold War Era." I think you will find it interesting. If you have any questions please call me at (301) 415-8420.

Again, thank you.

Sincerely

Maria Lopez-Otin  
Chief-of-Staff  
to Commissioner Diaz

Enclosure:  
As stated

B/B

**RETHINKING THE DIVIDING LINES:**  
*New Approaches for the Post-Cold War Era*

Remarks of Commissioner Nils J. Diaz  
U.S. Nuclear Regulatory Commission

before the

**Ninth Annual Weapons Complex Monitor Decisionmakers' Forum**  
**Amelia Island Plantation, Jacksonville, Florida**  
**September 29, 1997**

The nuclear age and the Cold War were born just months apart. Only seven months separate the fireball over Hiroshima from Winston Churchill's famous declaration at Fulton, Missouri, that an Iron Curtain had descended across Europe. The two events were not just coincidence. Tension over nuclear weapons, beginning with the fact that the U.S. had the atomic bomb and the Soviets did not, helped create and then deepen and perpetuate the hostility and suspicion between East and West.

For close to half a century after that, the legacy of the Cold War affected the way the United States approached all uses of nuclear energy – not only nuclear weapons production, but also civilian applications. We made it a cardinal principle that there should be the strictest possible segregation of military from civilian applications. The need for separating the two spheres of nuclear energy acquired almost the quality of a taboo, as though any overlap or mingling of military and civilian programs would contaminate the latter and weaken the former.

Fifty years have changed the landscape almost beyond recognition. It was at

Yorktown in 1781, as Cornwallis's troops were marching out in surrender, that a British band struck up a popular tune: "The World Turned Upside Down." During the past decade, our generation has had the privilege of witnessing a transformation that may prove to be as momentous and far-reaching for our era as was the American Revolution for the world of the 18th Century, with the Soviet Union defunct, the Cold War over, and the threat of thermonuclear war vastly diminished.

This morning I would like to address just one aspect of the profound changes that the end of the Cold War has brought. The issue at hand is how do we approach the military and civilian uses of nuclear energy, and how we view the demarcation line between them. Specifically, to the extent that our existing policies were shaped by Cold War considerations, do the altered circumstances call for new approaches?

I believe they do, and I plan to focus today on three aspects of this issue: using plutonium from dismantled nuclear weapons as fuel in civilian reactors; making tritium in civilian reactors; and NRC external regulation of Department of Energy facilities.

Where plutonium is concerned, the central issue that the world confronts today is how to dispose of the massive amounts of the element that were produced for nuclear weapons during the Cold War.

This was not always the key issue. In the 1970's, at the time that President Carter announced a ban on reprocessing and the use of mixed oxide fuel in nuclear power plants, the paradigm was different. The international regime for controlling non-proliferation was still in its formative stages, both in an institutional and a technological sense. Budding or suspected weapons programs in a number of countries seemed to raise

the specter of atomic warfare on a regional level, and proliferation of delivery systems could make them into transcontinental weapons.

To many in Government at that time, the risk of nuclear terrorism, involving either an explosive device or a mechanism for dispersing particles of plutonium, also seemed to point to plutonium itself as the problem. They believed that only if reprocessing of spent fuel were forestalled, here and abroad, and plutonium kept out of the commercial economy, could the dangers posed by plutonium be kept within bounds, and that this required the United States to set an example to the world, by renouncing commercial reprocessing unilaterally. All these factors were held to outweigh the energy value of the plutonium present in spent reactor fuel.

We need not argue today, with the benefit of hindsight, the merits of that decision – nor do we need to reconsider it, as far as reprocessing of plutonium from commercial spent fuel is concerned. But with regard to the plutonium inventory from nuclear weapons, the changed landscape of the present may demand quite a different approach, if the goal of ensuring non-proliferation is to be achieved. For with the United States and the nations of the former Soviet Union committed to large-scale reductions of nuclear weapons stockpiles, the principal focus of concern must be the enormous amounts of plutonium in the weapons that are to be destroyed as disarmament progresses. That plutonium must be dealt with, one way or another, for it represents a potential risk to all mankind.

The ultimate decision on what will be done with this plutonium will have to be made by the Congress. But essentially there are now two options, as proposed by

President Clinton's Administration: One is to vitrify it in glass or ceramic material and bury it in a geologic repository; the other is to burn it in nuclear power plants for its energy value.

At present, the Nuclear Regulatory Commission is preparing to support the Department of Energy as it proceeds with a two-track approach to disposing of excess weapons-grade plutonium. The plan is to immobilize, for permanent disposition, the plutonium not suitable for reactor fuel, and simultaneously to use the remainder in mixed oxide fuel for use in commercial reactors. NRC expects to be involved in licensing the mixed oxide fuel fabrication facility as well as in the review of the license amendments that would be needed by nuclear licensees wishing to use the mixed oxide fuel.

The idea of disposing of plutonium without making use of it has a certain symbolic value. Like casting out a demon, it sends a message of expunging nuclear weapons and everything connected with them from our lives. But it is also wasteful and could imply retrievability. Over the course of half a century, the world's nuclear nations spent a huge amount of their own and the world's resources on nuclear weapons. It would be regrettable simply to bury it, when it could provide a significant benefit to people here and abroad. And it is doubtful that the Russian nation would consider it non-retrievable.

Moreover, if there is symbolic significance in renouncing plutonium, there is also both a symbolic and a practical value in reusing it. One need only think of the Book of Isaiah in the Bible. When it spoke of beating swords into plowshares, it was

not just making a metaphorical point about turning away from warlike pursuits. It was also talking in pragmatic, every-day terms about recycling the materials of war to be of value in peacetime.

Whatever one may think of nuclear weapons, plutonium itself is not evil, any more than was the iron used to make swords in Biblical times. The issue is the use to which we put these materials. My view is that the best use we can make of surplus weapons-grade plutonium is to help meet the world's energy needs by burning it in nuclear reactors. And this does not represent a conflict with the ban on spent fuel reprocessing.

The argument can be made that to put military plutonium into civilian reactors blurs the demarcation line between the two arenas. I would respond to that in two ways. First, it is not as though this would introduce plutonium into civilian reactors for the first time; plutonium is always there, in spent fuel. Second, and more fundamentally, the strict segregation of military and civilian applications of nuclear energy has become in large measure an anachronism, reflecting not present reality but the reality of decades ago. Do we fear that the public will recoil from the idea of civilian nuclear uses because materials formerly in the military sector are used to fuel nuclear power plants? I believe we should not fear this, if we properly inform the people. The passage of half a century means that we can make decisions in this area on the basis of rational, pragmatic considerations, free from exaggerated fears or undue emotionalism. I believe the public will accept it as a necessary option in the present drive to diminish or eliminate plutonium as a weapons material.

Now, it could be argued that even if the dividing line between military and civilian uses is outmoded, the dangers of theft, diversion, and proliferation, which helped drive the decision on plutonium recycling in the 1970's, are still present. I would answer by saying that the technology and safeguards processes that we have today to track nuclear materials and ensure their security and accountability is far advanced above what was available 20 years ago. And we did not do too badly even then. Our knowhow has also advanced, and our capability from information technology is enormous. Put those factors together and it is fair to say that the landscape has changed completely and the capability is in place.

A similar analysis applies to tritium, and the question of whether to produce it in civilian reactors. Is it economical to do so? Yes, unquestionably. Is tritium a substance somehow alien to the civilian side of nuclear energy? No, it is always present in nuclear reactors – and even in watches and signs, in minuscule amounts. Is there an alternative to using civilian reactors to produce tritium? Yes, and that is to build a large accelerator devoted solely to tritium production: a weapons machine. Would that be the best option, all things considered? I doubt it very much.

The NRC staff recently approved a license amendment to allow the Tennessee Valley Authority to test tritium-producing boron absorber rods at the Watts Bar plant. Within the next few weeks, TVA plans to load the first four test assemblies.

The emphasis for these national security activities, I believe, should be on transparency and accountability. If we use civilian reactors to produce tritium, with full accountability – perhaps with the involvement of the International Atomic Energy

Agency -- we are serving the goal of non-proliferation and obtaining economic benefits as well. We have outgrown the era in which it was sufficient to ask whether a particular use was military or civilian. We need to look at all these topics on a case-by-case, issue-by-issue basis, deciding what is the best way to maintain national security, ensure that we will meet non-proliferation goals, and aid our economic competitiveness.

Lastly, I would like to discuss the issue of NRC regulation of DOE activities. This again is a question of a demarcation line that time has overtaken.

The Energy Reorganization Act of 1974 imposed a strict separation between the regulators and the promoters, creating two new agencies out of the old AEC. There were a number of reasons that led Congress to abolish the AEC. One was that the commercial nuclear industry had grown rapidly, and an agency devoted exclusively to regulation seemed warranted. But in addition, there was a strong element of concern that as long as a single agency was responsible for both regulation and promotion, the promoters, with their vastly greater budget, would win out, and the regulators would be unwilling or unable to exercise meaningful control over them.

The proposals for NRC to assume regulatory control over DOE facilities arise in a completely different context, wholly removed from the issue of promoting civilian nuclear power. The issue, reduced to its simplest terms, is to decide who can do the job best, DOE itself, NRC, or some other entity or combination of entities. The starting point for addressing that question is the reality -- and here I think there is general consensus -- that DOE self-regulation has not been a success, nor is it perceived as such by the public.

I believe that safety and health will benefit by entrusting the job of regulating DOE facilities to the NRC. The issue should not be the demarcation lines laid down in 1974 or in 1954, but what makes sense in the 1990's. At this point, NRC has a track record as an effective regulator, with unmatched expertise in the area of nuclear energy, as well as willing and able to tackle health and safety problems at commercial licensees. I see no reason to think that NRC would be any less effective in regulating DOE facilities. The danger that NRC's authority would somehow be overborne by the size of DOE's budget seems to me negligible. NRC's independence is too firmly established at this point to be at risk of being compromised by giving it new regulatory responsibilities. In fact, worries to the contrary are prevalent, i.e., would the NRC's rules and regulations overwhelm the DOE facilities? I believe that the safety and radiation protection standards at DOE facilities can be systematically upgraded to NRC standards in a phase-in program. In fact, we are doing so with the U.S. Enrichment Corporation.

The concept of NRC regulation of DOE facilities will be put to the test with a pilot program, under a Memorandum of Understanding expected to be signed by October 30. In Fiscal Year 1998, the first three DOE facilities – the Lawrence Berkeley National Laboratory, the Radiochemical Engineering Development Center, and, tentatively, the Spent Fuel Dry Transfer and Storage Facility in Idaho, will come under NRC regulation. The pilot program will be expanded by three to seven more facilities in Fiscal Year 1999.

I would like to close today by reiterating that we serve the nation best when we

address ourselves to the real issues of the real world of the present day. We cannot afford to be locked into the modes of half a century ago, no matter how appropriate they may have been in their time. The demarcation lines of the past between military and civilian uses, and between the regulators and the promoters, had their reasons, and served their purposes, but they should not go unquestioned for all time. Rather, it is time not for a wholesale abandonment of those divisions, but for rethinking them. In my view, rethinking them will mean selectively redrawing those lines – in part to better achieve the goals which underlay them.

We owe it to the American people to make these decisions – on plutonium, on tritium, on DOE regulation, and maybe others with a dual nature – not on the basis of old shibboleths, but on what makes sense in the here and now. Protecting public health and safety, protecting national security and the environment, ensuring non-proliferation of nuclear weapons, and serving national economic interests, all may call for different answers today from those of decades ago.

The Berlin wall was erected to divide a country and keep it apart, physically, politically, militarily, and economically. It crumbled because it was fully obsolete. Invisible but effective walls are sometimes erected inside countries to achieve a separation, and often they need to crumble. As President Reagan said, "Tear down that Wall!" A part of the wall dividing military and civilian nuclear issues needs to crumble, to better serve the people of the United States.