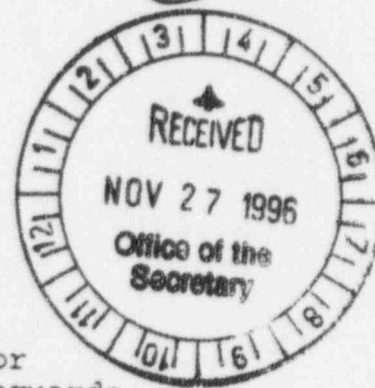




UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

DSI-2

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November 27, 1996

MEMORANDUM TO: John C. Hoyle, Secretary
Office of the Secretary

FROM: John T. Larkins, Executive Director
Advisory Committee on Reactor Safeguards

SUBJECT: COMMENTS BY INDIVIDUAL ACRS MEMBERS REGARDING
DIRECTION SETTING ISSUES

Attached for your consideration are comments by Drs. Dana Powers and Donald Miller, and Mr. John Barton, ACRS Members, regarding Direction Setting Issues # 2 (Oversight of the Department of Energy), # 13 (Role of Industry), and # 11 (Operating Reactor Program Oversight), respectively. These comments represent the views of the individuals mentioned above and do not necessarily represent those of the ACRS full Committee.

Attachment: As stated

cc: ACRS Members
J. M. Taylor, EDO
J. Milhoan, EDO
J. Craig, RES

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COMMENTS BY
ACRS MEMBER DANA A. POWERS

ON

DIRECTION SETTING ISSUES
OVERSIGHT OF THE DEPARTMENT OF ENERGY

A. SUMMARY CONCLUSION

Regulation of the Department of Energy's nuclear facilities and operations by the NRC is a fascinating topic. It is, however, one embroiled in political debates now. It does not appear likely that there will be an immediate resolution of the role NRC is to take in the safety regulation of the Department of Energy. I see no immediate urgency for ACRS to review this issue. Should it be that NRC assumes a more comprehensive role in the regulation of the Department of Energy, the ACRS will be very heavily involved. There will be many substantive technical issues that will merit ACRS attentions.

B. DISCUSSION

Safety and safety oversight of the Department of Energy's nuclear facilities and operations has been an area of controversy for many years [1]. The regulation of these facilities was placed in the hands of the Atomic Energy Commission by the Atomic Energy Act of 1954. That is, the owner-operator of the facilities is the safety regulator. This situation contrasts the usual, independent relationship between the regulator and the regulated. Since the division of the Atomic Energy Commission into ERDA and NRC there have been proposals to have NRC be the safety regulator for the nuclear activities now done by the Department of Energy. These proposals have been rejected for one reason or the other in the past. Not the least of these reasons to reject NRC oversight of the Department of Energy has been the Commissioner's lack of enthusiasm for such a role. In light of an unenthusiastic Commission in the past, it has been easy to make vague references to national security and agency independence to preserve the self regulation of the Department of Energy. Furthermore, the Department of Energy's safety record has been, on the whole, really quite good, especially with regard to protection of the public health and safety. Public concern over the self-regulation of the Department of Energy nuclear activities is more a philosophical concern rather than a concern born of evidence of any clear threat to the health and safety of the public. Environmental contamination, on the other hand, is extensive. Whether self-regulation has let such contamination get out of hand relative to comparable activities is arguable. It is clear that the contamination greatly exceeds what is now thought to be acceptable. The situation with respect to the safety of the workforce is similarly equivocal. There is just not clear evidence that self-regulation has inflicted egregious harm on the workforce.

The demise of "the Cold War", has significantly attenuated the persuasive power of references to national security as a basis for the self-regulation of Department of Energy nuclear facilities and operations. Furthermore, recent inquiries to NRC about regulation of the Department of Energy have not been rejected as firmly as were inquiries in the past. Indeed, the NRC does now have regulatory responsibilities for several Department of Energy activities. Especially notable is the NRC's role as the regulatory authority for any geologic repository for high level radioactive waste. Recent initiatives by the Department of Energy to make greater use of private enterprise for the conduct of some of its hazardous nuclear activities will undoubtedly lead to even greater NRC regulation of nuclear facilities and operations at Department of Energy sites.

The issue of interest in the Direction Setting Issue paper #2 is not, then, whether there should be NRC regulation of the Department of Energy. Some such regulation of the Department of Energy is occurring now and it appears inevitable that there will be even greater NRC regulation of activities sponsored by the Department of Energy in the future. The issue is whether or not NRC should take a more comprehensive regulatory role in connection with Department of Energy activities.

The Direction Setting Issue paper #2 does a good job describing the jurisdictional issues that arise in connection with the Department of Energy nuclear activities. The issue paper sets down four options for NRC:

- NRC could seek a comprehensive regulatory role.
- NRC could seek a regulatory role for a limited subset of the nuclear activities of the Department of Energy.
- NRC could reiterate its traditional opposition to regulation of the Department of Energy.
- NRC could take no position on the question and let the political process decide if NRC should be the regulator of some or all Department of Energy nuclear activities.

The discussion of the four options presented in the issue paper draws heavily on the recommendations of the Advisory Committee on External Regulation [2]. It is my opinion that the issue paper attributes greater importance to these recommendations than does the Department of Energy. It is true that the current Secretary of Energy has indicated that she accepts the recommendations of the Advisory Committee. Acceptance of the recommendations does not necessarily mean that the recommendations will be acted upon. Not all the segments of the Department of Energy are as enthusiastic about external regulation as the Advisory Committee or the Secretary. Furthermore, the Congressionally-mandated Defense Nuclear Facilities Safety Board does not appear to be enthusiastic about NRC being the external regulator for the Department of Energy.

The issue paper discusses the issues of NRC oversight of the Department of Energy from a perspective of the different types of activities that are done. The nuclear facilities and operations of the Department of Energy are indeed diverse. But, I am not persuaded that this is the only or even the best way to examine the Department of Energy. It may be profitable to examine the Department of Energy as a collection of unique sites. Each site may have a large number of nuclear activities underway including fuel processing, waste processing, waste storage and reactor operations. The Department of Energy uses a field office structure to oversee the sites. Each of the field offices has a great deal of independence. This independence of the field offices means that the treatment of safety at each site is really quite different. It might then be better to look upon the Department of Energy as 35 potential licensees rather than as a single, potential client or as 8 licensable activities.

The issue paper does note that the processes used by the Department of Energy to define safe operating conditions now and in the past have not involved a great deal of public input. This, I think is not such a great issue. There are other features of the Department of Energy's approach to safety (its safety culture) that would be at far greater odds with the NRC safety approach. Among these are:

- The Department of Energy's Order and Rule system does not make systematic or extensive use of industrial standards.
- There are no equivalents of Standard Review Plans.
- Regulatory Guides, when they exist, are less explicit and far more optional than Regulatory Guides now used by NRC.
- There really isn't even the thinnest veneer of consistency in safety approach between different sites or even between different activities at the same site.

There will be cultural clashes between NRC and the Department of Energy in the areas of safety. It is now true that reactor safety within the Department of Energy is up to modern, commercial standards in many respects. There is, of course, the contrary opinion over confinement versus containment for these reactors. Inspection and enforcement processes are not nearly as frequent or as stringent within the Department of Energy as they are in commercial nuclear power plants. But, the biggest clash will undoubtedly arise in connection with nonreactor nuclear facilities. The difficulties the NRC has had with the licensing of the gaseous diffusion plants will be typical and definitely not a worst case.

NRC will have some adjustment to make itself were it to regulate Department of Energy activities. There are features of Department of Energy sites that just do not compare with sites for commercial facilities. Notably,

- Often Department of Energy sites are big. Site boundaries are many miles away from any member of the public. On the other hand, site populations can be huge. Populations in excess of 10,000 exist at several sites.
- Facilities are often ancient - older, in some cases, than the oldest of the commercial nuclear reactors. Very often there is not a retrievable design basis for the facilities.
- Relative to the fission product inventory of a large commercial reactor, site inventories of radioactive materials are low. For instance, high level waste at the entire Hanford site amounts to only about 1/8 the inventory of a large light water reactor core when evaluated on the basis of Curies.
- There are usually multiple, different nuclear material activities at a site. Each of these activities can affect the others in ways that are not commonly encountered in commercial situations.

To my mind, there are some fundamental decisions that NRC will have to make in regard to safety regulation of Department of Energy facilities and operations over and above whether to do it or not. In fact, whether or not to do it does not seem to be an option. NRC does and will continue to have at least some safety oversight responsibilities for Department of Energy activities. As this activity grows, NRC will need to decide:

- Can a "lead agency" agreement be established to simplify and rationalize the multiple, sometimes conflicting regulations imposed on Department of Energy operations.
- Will NRC treat Department of Energy facilities differently than it treats current licensees. Will it just take over the Department's safety structure and enforce it or will it replace this structure with that now applied to licensees in the private sector.
- Will NRC focus just on public health and safety or will it have to take greater cognizance of the large workforces on the sites that are not involved in the regulated activity.
- How will interactions among diverse facilities and operations be treated.
- How do you enforce regulations on a government agency and what is the meaning of shutdown of operations for passive processes such as fuel storage, waste storage, etc.

C. REFERENCES

1. Committee to Assess Safety and Technical Issues at DOE Reactors, *Safety Issues at the Defense Production Reactors - A Report to the U.S. Department of Energy*, National Academy Press, 1987
2. Advisory Committee on External Regulation of Department of Energy Nuclear Safety, *Improving Regulation of Safety At DOE Nuclear Facilities*, December, 1995