HEALTH PHYSICS SOCIETY

"Specialists in Radiation Safety"

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Dr. Thomas J. Laetz, Senior Policy Analyst
United States General Accountability Office
1244 Speer Blvd., Suite 800
Denver, CO. 80204

Dear Dr. Laetz:

The Health Physics Society (HPS) is pleased to respond to the request from the Government Accountability Office (GAO) for information on its assessment of the Department of Energy's (DOE) capabilities to ensure nuclear safety across its complex as requested in your email to Scott Kirk on April 26, 2007. I apologize for the time it has taken to provide this reply. As Scott has relayed to you in phone conversations this task has a complexity to it that has required the HPS to have discussions involving multiple experts and to struggle with the appropriate areas for HPS comments. In addition, we were in the midst of our annual turn over of HPS leadership, which occurred in July.

In your request for input you outlined three basic research questions. They are: (1) how has the reorganization [of the DOE Office of Health, Safety and Security] changed nuclear safety oversight at DOE; (2) what benefits and shortcomings might arise from this reorganization; and (3) how does DOE's approach to nuclear safety oversight compare to approaches other domestic and foreign organizations take to oversee their externally regulated nuclear facilities? You also asked for any input we may have on the long-running debate about allowing DOE to continue self-regulation and oversight of worker and nuclear safety at its sites.

Your questions about this task relate to "nuclear safety" in the DOE complex. Nuclear safety is a broad area that includes several different aspects, such as, nuclear criticality control, occupational radiation safety, etc. Although the fundamental principles of safety program management generally apply to all aspects of a safety program, it is appropriate that the HPS only address radiation safety programs for the worker and public.

The first two questions are specific to the DOE's reorganization to create the Office of Health, Safety and Security. We do not consider it appropriate for the HPS to comment specifically on DOE's decision on internal organizational structure. The effectiveness of any organization in obtaining and maintaining a safe and healthy work environment primarily depends on the organization's commitment to safety as demonstrated and implemented by the organization's senior managers down to the individual worker. The HPS does not have a basis upon which to comment on or judge the "safety culture" of the new DOE organization.

However, an aspect of the third question, particularly in the context of the long-running debate about self-regulation, is a topic upon which the HPS has developed a position statement. That aspect is the desirability for compatibility in radiation safety standards and in implementation of these standards in all entities in the United States.

The DOE is unique among federal agencies in that it is self-regulating with regard to radiological protection and nuclear safety. It is well recognized that self-regulation carries with it the fundamental flaw of creating an inherent conflict of interest between the separate goals of safety versus expediency in accomplishing the mission of the Department. Additionally, regulation of occupational radiation programs by a number of different entities, whether external or self-regulation, results in variable radiation safety standards and regulations in the United States, which results in confusing, inefficient, inconsistent, and unnecessarily expensive radiation protection policies.

The fundamental flaw of the inherent conflict of interest in safety oversight in the DOE system has been recognized by the GAO in multiple reports over the past decade, and legislation has repeatedly been introduced but not enacted by Congress to place all or parts of the DOE complex under external regulation by the U.S. Nuclear Regulatory Commission (US NRC) for radiation protection programs and the Occupational Safety and Health Administration (OSHA) for other worker safety programs.

The HPS believes in the fundamental principle that a single, independent agency should have the authority to establish and enforce national standards for radiation safety. The self-regulating situation of the DOE with regards to radiation safety is in contrast to this fundamental principle. By establishing standards for radiation safety that differ from the uniform standards followed by other federal agencies, the DOE has created and is currently creating a dual system of safety protection for radiation workers in this country, i.e. the DOE-way differs from the rest-of-the country. For

example, the DOE just revised its radiation safety regulations to adopt recommendations of the International Commission on Radiological Protection (ICRP) that are more recent than the ICRP recommendations that form the basis for other federal and state regulatory programs. The impact of this conversion will result in, among other differences, measurements of dose from a neutron source that differ by approximately a factor of two between the DOE measurement and a measurement by any other federal or state agency. Differences in occupational radiation safety programs of this nature within the United States undermine the credibility of our radiation safety programs, result in confusion for the workers and adds to the general lack of public understanding about radiation issues.

By retaining enforcement authority over its own operations the DOE continues to be subject to the inherent conflict of interest in this self-serving arrangement. Internal reorganizations of the Department's health and safety oversight functions cannot remove the inherent conflict of interest in having a single agency fulfilling the dual roles of both promoting and overseeing its radiological and nuclear operations.

Separate oversight by a single federal agency, i.e. the US NRC, has proven to be effective in establishing and enforcing radiation safety standards in other federal agencies. It is the recommendation of the HPS that Congress act to establish a regulatory framework placing radiation safety under a single independent federal agency, consistent with the requirements established in the long-standing HPS position statement "*Compatibility in Radiation-Safety Regulations*" (http://hps.org/documents/compatibility_ps004-1.pdf).

This position statement, which is attached for your convenience, was initially developed to address the dual but inconsistent regulations issued by the US NRC and EPA in the mid-1990's regarding clean-up standards for termination of an US NRC license after decommissioning an NRC-licensed facility. Although there is now a Memorandum of Understanding between the US NRC and EPA on how to administer these regulations, the dual and inconsistent regulations still exist. Since then the potential for inconsistent regulations for occupational workers has developed. The OSHA is conducting an information gathering process to consider changing their outdated radiation safety regulations, which are currently inconsistent with other federal and state agencies, to include adoption of ICRP recommendations that would continue to make their regulations inconsistent. As already cited above, the DOE has created inconsistent occupational regulations in the past and is continuing to do so with the implementation of the newer ICRP recommendations.

In your message requesting HPS input, you asked “If the concerns about self-regulation are justified, what are the pros and cons of alternative approaches to ensuring independent oversight and enforcement of nuclear safety across the DOE complex?”

Generally speaking, the “pros” for having the US NRC provide regulatory oversight are (1) obtaining consistency in radiation-safety regulations in the US, (2) removing the inherent conflict of interest in conducting a self-regulated program, (3) gaining the worker and public confidence there is independency in providing a safe work environment, (4) provide a greater “transparency” to the regulation of radiation safety, and (5) perhaps some economic gains from standardization and technology sharing. The “cons” are (1) providing the human capital resource to the US NRC to expand its mission, and (2) the human resource turmoil in the DOE that accompanies reorganization and mission change. Historically, the DOE had national security concerns and requirements, particularly with its defense related activities, that justified a self-regulatory environment. However, with the greatly increased security environment in which the US NRC now operates following the events of September 11, 2001, and the relaxed non-proliferation environment following the cessation of the cold war, it appears that this concern may be receding as the US NRC and DOE approach a similar level of security requirements.

I have attached a list of some of the alternative approaches that could be considered to have independent oversight of radiation safety programs in the DOE complex. The general “pros” and “cons” identified above will apply to each of these alternatives to some degree depending on which alternative is chosen. Also, some of these alternatives can be viewed as means to “transition” to a totally independent regulatory framework for DOE. Finally, this list is not presented as representing all alternatives that could be available or used.

I hope you find this input useful. The HPS is encouraged that the states’ Conference of Radiation Control Program Directors (CRCPD) have a view similar and consistent our view presented here regarding DOE regulation. This is demonstrated by the CRCPD Board of Directors’ recent consolidation and updating of previous CRCPD resolutions on this topic in their resolution of August 7, 2007, relating to “Regulation of U.S. Department of Energy Facilities and Responsibilities of States for the Regulation of Sources of Radiation (Radioactive Materials and Radiation Producing Machines) at Those Facilities“ (http://www.crcpd.org/Positions_Resolutions/Environmental/RegulationAtDOEfacilities.pdf).

Sincerely,

Kevin L. Nelson, PhD, CHP

Attachments

HEALTH PHYSICS SOCIETY

COMPATIBILITY IN RADIATION-SAFETY REGULATIONS

POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY*

Adopted: January 1992
Revised: August 2000
Reaffirmed: March 2001

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The Health Physics Society believes the current regulatory framework for establishing and enforcing regulatory radiation-safety standards results in inconsistent, inefficient, and unnecessarily expensive public health protection policies regarding radiation safety. Therefore, the Society advocates the establishment of a regulatory framework with the following requirements:

1. A single, independent U. S. Federal agency (herein called the Agency) shall have the responsibility and authority to establish all ionizing radiation-safety standards for all controllable sources[1] of occupational and public exposures.

2. The Agency shall have the responsibility and authority to oversee enforcement of all radiation-safety programs implementing these radiation-safety standards.

3. Provisions shall be made for the Agency to delegate enforcement authority to other governmental entities or agencies similar to the current provisions for Agreement State Programs under the Atomic Energy Act of 1954 as amended.

4. Delegation of authority under the previous provision shall be for enforcement responsibilities only. The regulatory radiation-safety standards for these lower tiered programs would be those established by the Agency.

5. Radiation-safety standards shall be consistent with the recommendations of the International Commission on Radiological Protection (ICRP), the National Council of Radiation Protection and Measurements (NCRP), and scientific consensus standards.

Footnotes

[1] A controllable source is any source of radiation exposure for which reasonable actions can be taken to limit radiation exposure without resulting in adverse effects on individuals. Examples of controllable sources include:

- Any source of man-made radiation exposure in the workplace (i.e., occupational exposure).
- Any facility or other operation that results in releases of man-made or technologically enhanced, naturally occurring radionuclides to the environment.
- Exposures from radiation-producing machines.
- Any localized areas of environmental contamination resulting from planned or accidental releases of radioactive material or disposal of radioactive waste.
- Technologically enhanced, naturally occurring radioactive material.
- Medical exposures to individuals who are not the subject of the medical procedure resulting in the exposure.
- Indoor radon

Examples of sources that are not controllable include:

- Natural terrestrial background radiation.
- Cosmic radiation.
- Naturally occurring radioactive material present inside the body.
- Medical exposures to individuals who are the subject of the medical procedure resulting in the exposure.
- Global fallout of radionuclides from atmospheric testing of nuclear weapons.
- Regional or global radioactive contamination from accidental releases of radioactive material.

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* The Health Physics Society is a non profit scientific professional organization whose mission is to promote the practice of radiation safety. Since its formation in 1956, the Society has grown to approximately 6,000 scientists, physicians, engineers, lawyers, and other professionals representing academia, industry, government, national laboratories, the department of defense, and other organizations. Society activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information. Society members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits. Official position statements are prepared and adopted in accordance with standard policies and procedures of the Society. The Society may be contacted at: 1313 Dolley Madison Blvd,. Suite 402, McLean, VA 22101; phone: 703-790-1745; FAX: 703-790-2672; email: HPS@BurkInc.com.

Options for External Regulation of Certain DOE Facilities and Activities

This list of options should be considered as alternatives to the current radiation safety regulatory framework administered by DOE itself.

1. Transfer DOE's current radiation-safety regulatory authority to the US NRC, using the current set of DOE regulatory requirements applicable to DOE facilities and activities.

2. Transfer DOE's current radiation-safety regulatory authority to the US NRC, using the current set of NRC regulatory requirements applicable to non-DOE facilities and activities.

3. Under either option, all or part of DOE's current radiation-safety regulatory authority could be transferred to US NRC. For example, such regulatory authority for DOE defense-related facilities and activities could remain with DOE.

4. Under any of the options above, consider the following alternate methods.
    a. US NRC could issue a "master" license to DOE, thereby regulating DOE in a manner similar to the method used for the Veterans Administration, and the Departments of the Navy and the Air Force.
    b. US NRC could issue a "broad scope" license to each DOE site.
    c. US NRC could issue specific licenses for selected DOE facilities and activities on each site (e.g., nuclear reactors, nuclear fuel handling facilities, accelerators, etc.).