THE OTA VIEW OF PRIORITY-SETTING

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ABSTRACT

In its Report, "Complex Cleanup: The Environmental Legacy of Nuclear Weapons Productions", the Office of Technology Assessment (OTA) views the setting of environmental cleanup priorities at the Department of Energy's (DOE) Nuclear Weapons Complex as a process that must be based on sufficient and reliable data and implemented with continuous and meaningful involvement by all interested and concerned parties. OTA found that DOE has thus far failed to effectively engage the public--particularly the residents of communities surrounding the weapons facilities--in the setting of cleanup priorities. DOE's priority-setting efforts to date also suffer from the lack of valid data regarding potential off-site health impacts from the waste and contamination at the Weapons Complex. Prospects for developing and implementing an effective priority-setting system could be improved through some of the policy initiatives set forth in the OTA report. In particular, to aid in the setting of health-based priorities, the structure and process for evaluating off-site health impacts should be enhanced, and scientifically sophisticated human exposure assessments should be conducted by qualified health professionals independently of DOE. In addition, independent site-specific public advisory boards with full-time technical staff could recommend priorities at each site, and a national advisory board could recommend priorities across the Weapons Complex.

THE OTA FINDINGS

The Office of Technology Assessment (OTA) was asked by the Senate Committee on Armed Services to evaluate the current and proposed approaches to waste management and environmental restoration at the Nuclear Weapons Complex. The results of this study -- which cover 14 facilities in 12 States -- are contained in the OTA Report, released earlier this month, entitled "Complex Cleanup: The Environmental Legacy of Nuclear Weapons Production." OTA's analyses focused on a number of issues relevant to priority-setting. In particular, OTA identified immediate problems and needs that could benefit most in the near term from additional emphasis and resources, and addressed approaches for setting priorities and allocating resources.

In general, OTA found that the most important issues in setting funding priorities have to do -- not with the specific methodology or computer model used to weigh and compare the costs and benefits of various activity packages -- but with the processes through which decisions about priorities are made. In other words, the issues are not so much methodological as they are institutional.

Perhaps the most basic institutional issue is whether the process used to arrive at priorities is viewed by the interested and affected parties as being open, fair and unbiased. In that regard, OTA found that an effective, credible and publicly acceptable process for setting cleanup priorities for the Weapons Complex has yet to be developed. Another key issue is whether the criteria used to arrive at priorities are based on sufficient reliable data to render them useful for that purpose. OTA found that some of the most prominent criteria in DOE's priority setting approaches are not supported by reliable data, nor by a credible process for obtaining the data. For these reasons, DOE's present priority-setting approach is unlikely to produce sound and credible outcomes. Significant institutional changes are required in order to improve the prospects for making sound and credible decisions about cleanup priorities..

Evaluation of DOE's Priority-Setting Approaches

DOE's efforts to set priorities for cleanup at the Nuclear Weapons Complex have ranged from the very general four-tier approach used in the Five-Year Plan to what DOE describes as the "rigorous, risk-based" methodology that is now being developed. DOE's various priority systems, however, have certain fundamental flaws pertaining to the criteria used in arriving at funding priorities, and the process through which DOE is attempting to develop and apply its priority system. Regardless of what specific methodology is used to set priorities, a priority system for Weapons Complex cleanup cannot be successfully implemented unless these types of issues are addressed and resolved.

Criteria for Setting Priorities

A major criterion used in DOE's priority setting systems is that of health risk. DOE stated (in the 1990 Five-Year Plan) that reducing "health risk impact is of primary importance" in evaluating the utility of activities or projects. Highest priority is assigned to situations that pose, in DOE's terminology, significant "near-term" health risks. DOE asserts, however, that the Weapons Complex contamination poses no "near-term" or "immediate" health threats. DOE maintains this position even though it is unable to specify the precise nature and extent of past releases of radioactive and hazardous substances, cannot identify the present whereabouts and concentrations of these materials in the environment, and has only begun to document the presence or absence of human exposure to such materials. Thus, the assertion that contamination represents "no immediate

threat" and no "near-term risk" is largely unsubstantiated. It is also somewhat misleading.

As explained in Chapter 3 of the OTA Report, "immediate health effects" or "near-term risks" are generally understood to be acute effects that occur within hours to days of exposure to high concentrations of toxic chemicals or radiation. By such a measure, smoking tobacco may accurately be said to pose no immediate or near-term risk of lung cancer. Preliminary data indicate that, with some exceptions, much of the current and future off-site exposure to weapons site contamination involves or will involve relatively low doses of contaminants occurring over long time frames. Such dosages and exposure patterns would not be expected to produce symptoms of "immediate" health impacts. Rather, the health impacts would be expected to take the form of longer-term health effects such as increased susceptibility to illness, increased incidence to diseases such as cancer that develop and become manifest only years or decades after exposure, and genetic defects manifest in subsequent generations, or reproductive dysfunctions.

At present, there is little or no reliable information about off-site contamination or the potential for off-site human exposure to contaminants. In addition, the possibility of chronic public health impacts resulting from weapons site pollution has not been adequately addressed by DOE or any other agency. While DOE's assertion that the contamination poses no imminent health risks may be correct, OTA found that this assertion is not substantiated by scientific evidence, and has understandably been met with great public skepticism.

In the absence of data documenting the amounts of contaminants released to the environment, the transport pathways followed by contaminants, the present whereabouts and concentrations of the contaminants, and the presence or absence of human exposure to such materials, the input to the priority setting systems' health impact factor will be extremely limited. The lack of data regarding potential health impacts greatly lessens both the utility and the credibility of any current priority-setting system.

In order to improve the health data to be used in setting cleanup priorities, OTA has concluded that a more aggressive and coordinated investigatory process that can assess public health issues and trace public concerns about health impacts to their possible sources is necessary to identify problems requiring immediate attention and to demonstrate more convincingly that public health is being protected. What is needed is a scientifically sophisticated, site-specific, and open evaluation of possible off-site health effects, conducted by qualified and independent public health professionals, with early and continuous public involvement.

There is a need to enhance the structure and process for assessing potential public health impacts from Weapons Complex waste and contamination. This could help in evaluating the possibility of off-site health effects, developing health-based environmental cleanup priorities, and addressing community health concerns. Unless and until the contamination-related health issues of most concern to the public are recognized and addressed, the most ambitious, sophisticated, and well-meaning priority-setting exercises will likely meet with skepticism, suspicion, and legal challenges.

To improve the present structure and process, Congress could consider establishing a new health assessment office (outside of DOE) to direct and coordinate comprehensive health assessments at Weapons Complex facilities and to coordinate with DOE, the Environmental Protection Agency (EPA), the Department of Health and Human Services (HHS), and State health departments on all matters of potential public health impacts from these facilities. The new office, which could be established within HHS (perhaps as an office within the Agency for Toxic Substances and Disease Registry (ATSDR)), EPA, or as a separate office reporting to Congress, could also develop and implement a process for identifying community concerns about potential public health impacts and for obtaining broad public involvement in these assessments.

The first task of the new office would be to establish teams of environmental health experts (health "Tiger Teams") from government agencies, universities, and the private sector, to design and direct human exposure assessments at each of the weapons sites. The new office would be responsible for initiating and directing additional health studies, including dose reconstruction projects, based on the exposure assessment findings. These health studies could be designed and conducted by government staff or by scientists from universities and the private sector.

The health Tiger Teams could be directed to conduct several tiers of exposure assessments. Initial, first-cut assessments of any current contamination scenarios that might pose the risk of current or future human exposure could be made available in 6 to 12 months. If the teams discover situations that warrant immediate attention to protect public health, action could be taken to address those situations. After the initial assessments, more refined studies could be performed as additional demographic and environmental monitoring data become available.

Exposure assessments could better equip responsible agencies and the public with data that may be useful in developing and implementing health-based priorities in a timely manner. They could eventually provide a basis for developing a more workable, health-based priority system. Exposure assessments conducted independently by health Tiger Teams could also guide Federal and State officials who negotiate interagency agreements in choosing among alternative schedules allowed under current laws and regu-

lations, and to integrate into those agreements actions based on the health impact information produced through the exposure assessments. The assessments can also focus on problem areas that require additional environmental characterization efforts or immediate attention through interim remediation measures.

In addition, a national independent advisory board could be established to provide advice and guidance with regard to health assessments and studies relating to the Weapons Complex. The board could be composed of experienced environmental health scientists and report to Congress and to the Secretary of HHS or the Administrator of EPA. The board could provide guidance regarding the methodology and design of exposure assessments and health effects evaluations. The board could also provide advice and recommendations about the use of health assessment results to establish both short- and long-term health-based cleanup priorities. It could also provide advice on health research needs related to the cleanup. As one of its first tasks, the national board could review plans submitted by the health Tiger Teams for conducting exposure assessments.

In conjunction with these policy initiatives, Congress could require DOE to make all data relevant to health impacts readily available to the scientific community and to the new office, the health Tiger Teams, and the national advisory board. This would encompass data concerning past emissions and environmental releases, including previously classified data on these matters. In addition, Congress could require that the same information be made available to the general public.

This policy initiative could strengthen the assessment of potential off-site health impacts, improve the prospects that community concerns about possible off-site health effects are addressed, and provide a scientifically sound basis for developing health-based priorities. It could also help ensure that site-specific assessments provide a way to evaluate comprehensively the past, current, and potential public health impacts of contamination. This type of structure and process could accelerate scientifically rigorous exposure assessments to determine the most urgent or significant health issues posed by the contaminants.

By establishing a mechanism to direct and coordinate the various site-specific health studies, this initiative could strengthen the current approach to health effects evaluations and to setting health-based priorities. By establishing consistent policies for community involvement in all stages of the health assessment process and permitting early identification of community health concerns, the new office could enhance the credibility of the assessment process and more effectively resolve the concerns of local communities. By determining which areas or sources of contamination may pose the greatest threat of off-site exposure, the new office could provide a sound and reliable basis for formulating and implementing health-based cleanup priorities.

The Process of Arriving at Priorities

DOE's process for developing the priority system has been severely criticized by the States and other interested parties because of limited opportunity for outside input and lack of responsiveness to issues raised by those outside DOE. OTA found that DOE decisions relating to the Weapons Complex cleanup -- including decisions about funding priorities -- generally lack credibility with many of the affected and interested parties.

Public acceptance of a priority-setting scheme and its results depends largely on the process by which the system is developed and applied. Although there will inevitably be disagreement on the outcomes of any priority-setting scheme, it is essential that the process of arriving at those outcomes is considered fair and unbiased and based on reliable data. In order to be publicly acceptable, both the development and the application of a priority-setting approachmust incorporate meaningful input by the interested parties. In that regard, there must be more than an attempt to "sell" a particular methodology to the interested parties. There must be an aggressive effort to develop a process that is acceptable to those who will be most affected and to implement it with continuous, ongoing public involvement.

DOE has expressed its intent to involve the public is the development of a priority system for the Weapons Complex. For example, DOE formed an External Review Group (ERG), which includes representatives from several States, Indian Nations, and other interested parties in connection with development of its current priority system. However, DOE has failed to engage many of the interested and concerned parties, particularly the residents of surrounding local communities, in a meaningful manner in the development of the system. Thus far, DOE has not shown itself capable of attaining a good working relationship with many of the outside parties with important stakes in cleanup priorities.

OTA concluded that the prospects for setting priorities can only be improved if significant changes are made in the way decisions about priorities are made. A key to those changes is providing mechanisms for meaningful and continuous public involvement. In its report, OTA suggested that Congress could establish public advisory boards with full-time technical staff at each site to provide both policy and technical advice to DOE, EPA, and other involved Federal and State agencies on a continuous, ongoing basis.

The site-specific boards could also provide policy and technical advice and guidance regarding the setting of health-based environmental cleanup priorities at the re-

spective sites. The boards could also help develop mechanisms for increasing the role of affected communities and enhancing public involvement in setting cleanup priorities at a particular site. To encourage the development of a useful and acceptable priority-setting system for each site, Congress could direct DOE and other involved agencies to work with the boards to develop cleanup priorities that address community concerns and incorporate the results of off-site health assessments at the respective sites. The boards could thus play a key role in developing, with broad community input, site-specific, health-based cleanup priorities.

The site-specific boards could be composed primarily of residents of the communities or regions in which a particular site is located. Board members could include representatives of community and environmental groups and Indian Nations in the area, as well as experts in relevant subjects. They could be chosen by, and report to, the Governors and members of Congress from the respective States in which the sites are located. In addition, the boards could provide their advice and recommendations to DOE, EPA, HHS, and other involved Federal or State agencies. Advice could also be provided to the chief officer of the relevant regional entity (for example, the head of the DOE Operations Office responsible for the site, the head of the EPA region in which the site is located, the head of the ATSDR division responsible for health assessments at the site, and heads of relevant State agencies.

In addition to site-specific boards, Congress could establish a national advisory board. Designated persons from each site-specific board and other experts could constitute the national board. The national board could coordinate the activities of the site-specific boards and provide advice and guidance on matters that apply to more than one site, and on the national aspects of issues considered by site-specific boards, and could recommend funding priorities across the Weapons Complex as a whole.

Finally, Congress could require DOE and other involved agencies to consult with the boards prior to making key decisions and report to the boards the manner in which their advice and recommendations were taken into account in arriving at those decisions.

OTA concluded that establishing strong public advisory mechanisms at the site-specific and national levels and requiring the agencies to consider, respond to, and incorporate such input in their priority-setting processes, could help develop a meaningful role for affected communities and the general public in setting and implementing funding priorities. The boards could provide a mechanism for helping to resolve fundamental policy and technical issues that continue to arise with respect to cleanup priorities. By having access to the information, technical support, and other resources needed to participate effectively in key aspects of the cleanup, the boards could foster a process characterized by an openness, trust, and cooperation among interested parties that is not being achieved at present. Setting cleanup priorities through a process that is open and acceptable to the public can go a long way toward achieving sound and credible outcomes.

Taken together, the initiatives outlined above could provide a mechanism for involving the public in the development of site-specific and complex-wide environmental restoration priorities based on the results of health assessments by competent and independent bodies. This type of process could result in sound and credible decisions regarding cleanup priorities.