

Testimony of Kenneth C. Rogers  
Before the Subcommittee on Technology and Innovation  
House Committee on Science and Technology

July 15, 2008

Chairman Wu and Members:

Before joining the U.S. Nuclear Regulatory Commission in 1987 as a Commissioner, I spent thirty years in the academic world as a Physics professor and as the President of an Institute of Technology.

During my ten years as a Commissioner, I had numerous occasions to visit the NIST Center for Neutron Research. After leaving the NRC I have served, on a pro bono basis, on several review committees for the Center. I am quite familiar with the activities and modes of operation of the Gaithersburg Center, but until recently, I never had any occasion to visit or learn about the work at the Boulder laboratory.

Sometime during the week of June 9, 2008 I received a call from Patrick Gallagher, the Chair of the NIST Ionizing Radiation Safety Committee, in which he asked me to serve with a small group of external experts to look into the circumstances of the June 9 Plutonium spill at the NIST Boulder Laboratory and to provide comments and recommendations for avoiding such an event in the future. I agreed to do so as did four other independent experts in nuclear safety. The charge to the group was to: identify the causes of the incident and any contributing factors; evaluate the NIST response; evaluate the report on the incident that will be produced by NIST; and provide to the Deputy Director of NIST by June 30 our individual recommendations for corrective actions to avoid future incidents and to improve NIST safety performance and incident response. We all worked from the same documents and testimonies, but we were asked not to attempt to produce a consensus report.

On June 23 and 24 in Boulder we met as a group with ten different people for approximately one hour each, and were given copies of electronic mail exchanges as well as copies of any documents we requested. There was a high degree of openness and cooperation in our interactions with the NIST Staff.

I have given the Committee a copy of my Report.

Because the Committee has already heard this morning about the incident itself I will confine my presentation to general findings and recommendations.

### **Preliminary Findings**

There is no uniform system, supported at all levels of management, to nurture and support a culture of safety awareness as a high priority in every NIST Boulder activity.

Policies and personnel exist at NIST that might have prevented this particular mishap: for example, the NIST Administrative Manual, the NIST Laboratory Safety Manual, the Safety Health and Environment Division, the Division Safety Representatives, and the Ionizing Radiation Safety Committee. However, safety procedures have not been consistently understood, applied and enforced at both Gaithersburg and Boulder. Some parts of the organization appear to have regarded safety formalities as interfering with creativity and safety activities as somewhat unwelcome competitors for scarce resources.

The Boulder Safety Organization, particularly its training activities, has been minimally supported and has had to function with inadequate technical and human resources. However, there has been some improvement in the last year or so.

There were numerous instances in the evolution of this incident in which important information should have been, but was not, communicated up one level or down one level or horizontally. People failed to ask essential questions. They made incorrect assumptions and acted upon them.

Several persons we interviewed felt uncertain as to how the safety organizations were supposed to work, and one described the safety culture at NIST as dysfunctional.

The NIST Boulder organization has not met a central leadership challenge: to successfully blend and maintain the enthusiasm of a collection of very talented people for cutting edge research with a deep respect for personal and community safety.

### **Preliminary Recommendations**

- NIST must proceed apace with the decontamination and if necessary the decommissioning of all laboratory areas affected by the spill, employing experienced well-regarded professionals.
- Consistent, open and clear lines of communication, providing up to date factual

information about the incident, must be created and maintained to the NIST Boulder staff and to all interested government and concerned public interest entities.

- A comprehensive Root Causes and Lessons Learned analysis must begin immediately and involve experienced recognized experts in such analyses from outside of NIST.
- Use of radiological material at Boulder should only take place in laboratories specifically qualified for such purposes in accordance with well-established standards and requirements. Room 1-2124, in which the spill occurred, did not meet those standards.
- A new Costs/Benefits analysis should be carried out that includes continuing conducting the research for the detector program requiring Pu or other SNM at laboratories well qualified to work with such materials.
- The use of the Plutonium sources CRM 133, CRM 138-1 and CRM 138-2 should not resume in any research at NIST Boulder, and alternative safer sealed sources must be used in any further work at Boulder
- Resumption of the research project should only occur after all staff connected with it are thoroughly trained and qualified for the safe use of any radiological or non-radiological material or equipment to be used in their work.
- The Radiation Safety Officer should be required to routinely check on staff compliance with the SAFETY PROCEDURE/HAZARD ANALYSIS CONSIDERATIONS that he lists in Form 364 as well as on the practices planned and occurring in the relevant laboratories.
- A systematic study of all potential and actual hazards at NIST should be carried out across the board as soon as possible. On the basis of that analysis a safe practices protocol should be developed for the guidance of all users of materials or equipment.
- The NIST staff training policies and practices should be thoroughly reviewed and modified to correct deficiencies. Staff must understand the hazards and their potential consequences of every new activity as well as ongoing projects and become familiar with NIST administrative procedures as well as the safety requirements related to their work.

- All managers should be held accountable for promoting a safety culture within their purviews, and manager performance reviews should include a consideration of how effective they have been in that regard.
- The functionality of the line management relationships at NIST Boulder to NIST Gaithersburg should be examined as a possible contributor to this unfortunate event. This study could take place in parallel with the Root Causes Analysis. Lines of communications and authority clearly broke down.
- Equally important is an examination of the functionality of the relationships between the Boulder Safety Organization and the other Groups, Divisions and Projects at Boulder and Gaithersburg. A clear understanding of how those relationships are envisioned by NIST top-level management has not been successfully communicated to staff at Boulder and is a serious weakness that should be corrected.

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