Welcoming Remarks and Charge to the Symposium

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Science and Engineering Informing the Political Process

William A. Wulf

As president of the National Academy of Engineering, it is my pleasure to open this first session of the National Symposium on Contaminated Sediments. I would like to begin by saying a few words about the set of organizations we refer to as the National Academies. There are actually four organizations, and unless you have some rudimentary understanding of that, it can be somewhat confusing.

I will start with a bit of history. The Europeans have had a set of academies of science for about four centuries. These academies are primarily honorific societies—in England, it is called the Royal Society. One gets elected to the academy of sciences by the members, based on a lifetime of contribution to scientific discovery.

In the United States, a little past the middle of the nineteenth century, a group of Americans decided this nation also should have such an organization. They decided to create a private, not-for-profit corporation called the National Academy of Sciences, incorporated in Washington, D.C. At the time, Washington, D.C., did not have a city government. Because the city was governed at the time by the federal government, more specifically by the U.S. Congress, all corporate charters were granted by the Congress. Accordingly, this group of Americans went to the Congress and asked that a corporation be formed.

However, a funny thing happened on the way to the Senate. It turned out there were two competing groups, and both wanted to form the National Academy of Sciences. One of them obviously would lose. A senator who was in favor of, and represented, the losing group inserted some nonstandard language into the boilerplate for the corporate charter. It was intended as a "gotcha." That nonstandard language said the National Academy of Sciences would provide advice to the federal government on issues of science and technology whenever requested to do so, and it would do so without compensation. That latter phrase has been interpreted to mean not-for-profit.

That little "gotcha" phrase has developed into one of the most productive relations between an academy and a government in the world today. It turns out to be the envy of the European academies. We have a relationship between this set of academies and our federal government that exists in very few other places.

This all happened in 1863, in the middle of the Civil War. The charter was signed by Abraham Lincoln and has stood us in very good stead. Between 1863 and now, what started out as a single organization, the National Academy of Sciences, has become four organizations. Three of them you can think of as honorific societies, more or less in the model of our European colleagues. They are the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. The fourth, the National Research Council (NRC), of which the Transportation Research Board (TRB) and Marine Board are members, is the operating arm of the National Academies.

Hence, we have a dual role. Part of the complex is honorific societies, whereas the other part provides advice to the federal government. I want to emphasize that we are not part of the government. We are, in fact, fiercely independent. We see our role as providing highly independent, highly authoritative advice—and we do a lot of it. We produce about 200 reports a year, roughly one every working day. Each one of them tends to be a book about the size and type of the report that you will discuss during this symposium. At any given time, about 6,000 volunteers are working very hard on tough and complex issues such as the one you will focus on during the symposium. Contaminated sediments is an excellent example.

Generally speaking, the issues addressed by the National Academies are difficult problems with important societal consequences, and they often require that science and engineering expertise and opinion become part of the political process.

You all know a great deal more about the topic you will be talking about than I do. I was given a set of reading material to get myself up to speed on this topic and was asked to take on the job of describing the "CS problem." I have to tell you, my background is as a computer scientist, so I felt I knew the "CS problem" very well. Then I started to read this material, and it did not match at all.

The fun part of my job is that I get to learn about all kinds of new things. Sometimes the things I learn are exciting and enlightening; sometimes they are scary. What I learned in preparing these remarks falls more into the latter category.

As I said earlier, you know this topic much better than I do, but the notion that 10 percent of the surfaces underlying our waterways are seriously contaminated, sufficiently contaminated to pose risks, is pretty scary. The fact that some 3 million to 12 million yd^3 (2.3 million to 9.2 million m^3) of what is dredged up every year in clearing our waterways is sufficiently contaminated to require special handling is pretty scary. The societal consequences are pretty scary in terms of damage to the ecosystem, propagation of these contaminants up the food chain, and implications for the loss of recreational waterways.

These are things to which I have given little attention. If I had, I probably would have realized that contaminants hang around for a long time under the surface of the water. I thought that, after Rachel Carson and *Silent Spring*, dichloro-diphenyl-trichloroethane was no longer a problem. Well, I learned that it still is a problem in sediments. I learned that few parts of the country are unaffected. It was no surprise to learn that the problem is further complicated by a tangled web of legislation, multiple federal agencies with responsibility, and overlapping state and local jurisdictions.

This is a perfect example of the types of issues that the National Academies take on—a really important societal problem that requires that science and engineering inform the political process and that policies be put in place. You have been asked here today to help us make some sense out of this difficult situation.

On behalf of the presidents of the two other honorary societies, Bruce Alberts, president of the National Academy of Sciences, and Ken Shine, president of the Institute of Medicine, let me once again welcome you here.

Success Through Consensus Building

Louis J. Thibodeaux

I am a professor of chemical engineering at Louisiana State University and had the privilege of not only serving as the co-chair of the TRB Symposium Steering Committee but also serving on the NRC study committee that prepared the report we will be discussing. I will begin by giving you a brief history of how the NRC got involved in the issue of contaminated sediments.

It began in 1988, when a Committee on Contaminated Sediments was formed under the Marine Board, which is a unit of the NRC Commission on Engineering and Technical Systems. I recall very well the first meeting in Tampa, Florida, where I had been invited as a workshop participant. This committee produced a report in 1989 entitled *Contaminated Marine Sediments: Assessment and Remediation.** (I will summarize briefly some of the findings contained in that report and offer comments on where we stand today.

• *Adequate data do not currently exist for comprehensive pinpointing and prioritization.* As evidenced by an

* *Contaminated Marine Sediments: Assessment and Remediation.* National Academy Press, Washington, D.C. 1989. Available via the Internet at http://www.nap.edu/reading room, or call the National Academy Press (1-800-624-6242).