

**TESTIMONY BEFORE**  
**THE SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT OF**  
**THE HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY ON**  
***THE ENVIRONMENTAL MEASUREMENTS LABORATORY (EML):***  
***BUMPS IN THE ROAD TRANSITIONING TO***  
***THE DEPARTMENT OF HOMELAND SECURITY***

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**Mr. Chairman, Congressman Sensenbrenner,** I thank you for the opportunity to discuss my experiences with the Environmental Measurements Laboratory (EML) in New York City, as an official who was present at the stand-up of the Department of Homeland Security (DHS) on March 1, 2003.

I had actually begun work with the predecessor of the Science and Technology (S&T) Directorate – the Transition Planning Office (TPO) – a few months before stand-up, in December 2002. At the time I began work there, I had over 17 years of experience in government. I had been an analyst, in areas where science and national security policy intersect, and a program manager, overseeing research and development programs for the Federal Aviation Administration and the Defense Threat Reduction Agency. As an analyst for the former Congressional Office of Technology Assessment, I had, in 1990-1991, written the first detailed analysis of the potential uses of technology in countering terrorism. My training is as an experimental physicist in the field of high energy physics, in which I received a doctorate in 1969.

When I began at the TPO, later the S&T Directorate, there were very few people on staff, perhaps some 25. That number ramped up quite quickly in the months after March 2003. At first, many of us shared duties; I was in charge of the Explosives Countermeasures Portfolio for a few months and at the same time responsible for overseeing EML, this latter task only for a few months. In addition, I worked in the Radiation and Nuclear Countermeasures Portfolio group as well. My efforts to understand EML were aided by the presence of 2 EML staff, who were on detail to the TPO and subsequently to S&T.

By summer 2003, things had settled down a bit, and I had just a dual responsibility: Program Manager for Radiation and Nuclear Countermeasures and Program Manager for Explosives Countermeasures in the Office of Research and Development (ORD). In these roles, I was responsible for research programs that were carried out by the Department of Energy's (DOE) National Laboratories, and those carried out by EML. Nearly all of my efforts were devoted to the large National Laboratories, as their projects consumed nearly all the budget allocated to my Program.

### *EML Programs at Transition to DHS*

My responsibilities regarding EML began soon after departmental stand-up, with administrative and programmatic oversight. During the time that I had this broad responsibility, I visited the site, became acquainted with current projects and staff and learned about the lab's capabilities, which they were trying to adapt to DHS needs.

It was clear that there would be some mismatches in capabilities relative to the new DHS needs. Their previous work centered around low-level radiation measurements. These were in support of environmental clean-up and monitoring and of global monitoring for fallout from nuclear weapons testing. However, I judged that their abilities in the area of radiation detection were adaptable to DHS requirements. EML staff also worked on or led activities that provided the environmental monitoring community with manuals on procedures and protocols for environmental sampling. This work could have some application for DHS, for example, in providing advice for clean-up after a dirty bomb attack.

Another major line of work at EML was the Quality Assurance Program (QAP), which vetted scores of radiological laboratories, in the United States and also in other countries, to determine the quality of their analytical practices. This was a service provided by EML, earlier funded by DOE, but in which DHS had no interest at the time (I understand that recently, S&T is setting up an Integrated Consortium of Laboratory Networks, in which the QAP might have been a useful component). Unfortunately, this service, which was used by many state and local laboratories, and, to my knowledge, was widely appreciated, disappeared when DHS decided to end funding for it. I understand that a commercial laboratory is now providing a similar service, but at significant cost.

### *Overall Assessment of EML at Transition*

My assessment of the laboratory and its potential uses for DHS were as follows. First, the laboratory space, rented from the General Services Administration, was in sad condition, depressing, and barely functional. The rent paid was far too high for the quality of the plant. About 60 staff members were on the payroll, down from about 120, a decade or two earlier. DOE had clearly left this laboratory in a neglected state, as a backwater, perhaps because emphasis on DOE clean-up activities dropped in recent years. The lab was in a clear decline, but welcomed and embraced the chance for a rebirth as part of a mission in which they had a strong and vital interest. The lab is located only about a mile from the World Trade Center, and staff were strongly and viscerally affected by 9/11. They were extremely motivated to become part of the global anti-terrorism effort, as well as to be in a position to take practical steps to aid in protecting New York against future attacks.

Some of the technical staff had been employed at tasks that had not changed much for several decades. Many appeared ready for retirement, and, indeed, in the following years,

a large number did retire. Some retirements, however, especially in 2005 and beyond, were apparently occasioned by disappointment, if not outrage, at the treatment they felt EML was receiving from DHS Headquarters.

On the other hand, a large fraction of the technical staff, of varied ages, impressed me as highly motivated, energetic, and very capable in their areas of expertise. The laboratory had had transitioned their work over to projects that they felt would be useful and welcomed by DHS.

One activity, the NY Area Science and Technology (NYAST) Working Group, held seminars for New York Metropolitan Area first responders: police, firemen, medical technicians, and civilian staff from the Office of Emergency Management. Lessons were given these non-scientists about understanding radiation, the dirty bomb threat, and how to use radiation measuring equipment. In talking with some participants on later occasions, I learned that these sessions were appreciated and considered very useful. They were quite well attended.

Another project of interest to me and to New York City officials was the Comprehensive Radiation Sensor Program, which deployed a small number of inexpensive but effective gamma ray detectors on rooftops in Manhattan. This network was intended to send data back via a wireless connection to a command center at the lab. The project was meant to function as an early prototype for a detection architecture that would produce relatively inexpensive monitoring of selected areas of the city, in the case of a radiation release. City officials at the Office of Emergency Management were enthusiastic about this program (as long as they did not have to fund it). This project was scheduled to be halted at the time I left, and headquarters funding was cut off, but it has been resurrected since, paid for only by staff salaries and time.

A third project, extremely interesting to me, was run by an EML physicist of national stature, Paul Goldhagen. Dr. Goldhagen was measuring the spectrum of neutrons from cosmic rays, in order to understand better the “ship effect.” If we understood this effect, it might enable us to reject this background and be able to detect radiological material in containers on ships, as they traveled across oceans to United States ports. This was basic research with a clear and vital connection to homeland security needs, and only a very few researchers in the country were involved in similar work.

Finally, there was program of global atmospheric monitoring, which had national security implications. It was co-funded by DOE/NNSA and the USAF, and provided useful, near-real time sets of atmospheric data.

By summer, I had transitioned to my program management role, and had no further oversight over the lab as a whole, except insofar as they carried out projects for me.

### *My View of the Proper Role for EML*

Since, upon its creation, DHS had willingly accepted EML as part of its organization, it was clearly incumbent upon DHS management to establish that lab's new mission, of course with input from and in collaboration with lab management. Indeed, DHS should have had an idea how the lab would be useful to them before accepting it on board. I saw no evidence that serious thought was given to this. Indeed, after a year or two, I heard grumbling among S&T management that EML had no idea what its mission should be, as though this were not the responsibility of S&T itself. Actually, EML had proposed some ideas for the proper scope of their activities, but none was accepted. I was concerned that there appeared to be no meaningful dialog between S&T and EML to address the lab's mission. During this period, EML tried to conduct its own planning, work, and outreach without much help or, indeed, interest from S&T.

My view, then and now, is the following: DHS was fortunate in acquiring an existing laboratory asset located in New York City, a prime target of international terrorists. The lab had, on its own, developed excellent working relations with city officials and could function as S&T's presence in the area. These relationships could have greatly facilitated communications and cooperation between federal and local homeland security officials, at least in the radiological area. The opportunity to use a ready-made asset in this way was unfortunately missed by S&T.

The laboratory had both negative and positive aspects: some staff were old and tired, but others were extremely energetic and effective. The physical plant was in bad shape, but could be improved or else the lab could be moved, perhaps to an existing DHS facility in the area, where the cost of rental would not be an issue. Finally, some excellent capabilities existed at the lab, which could have been expanded upon. Some of these were:

- the atmospheric monitoring project;
- the neutron "ship effect" work;
- a strong operational and statistical understanding of low-level radiation contamination measurements;
- the vetting of a nationwide network of radiochemical laboratories;
- the development of an inexpensive distributed network of radiation detectors;
- and, most importantly, a cadre of willing and active scientists who were anxious to help, for example, with developing, operating, and staffing a radiation measurement test bed in New York.

This last item was fortunately accomplished: EML scientists became an integral part of DHS's Countermeasures Test Bed, operationally testing radiation detection equipment that was deployed at air- and seaports in the New York area.

Unfortunately, most other items were not accomplished.

Had I had the authority, I would have tried to have EML both engage in the above work and also support the rest of DHS fully in other radiological projects in the New York area. I would have considered trying to provide some of the services, such as the QAP, for the good of the community of radiochemical laboratories in the country, probably in collaboration with DOE. And I would have kept some of the atmospheric monitoring work that was useful for other U.S. government agencies, even though it did not fit within the prevailing definition of DHS responsibilities.

Further, I would have authorized the lab to hire some young scientists with recent degrees, to reinvigorate what had been a leading radiation measurements laboratory, some 20-30 years earlier. Many such newly-minted PhD's would, in my opinion, have been keenly interested in contributing their knowledge and talents to defending the nation against the terrorist threat. Briefly, I would have decided that although the lab had some issues, it would have been worth rebuilding it into a high profile DHS/S&T facility in New York.

Apparently, DHS management did not share my feeling.

### *Proposals and Rejections*

During 2003, S&T management wisely decided to permit ongoing projects to continue. In 2004, management naturally and correctly wanted to develop a program plan for EML that corresponded more to DHS needs and requirements. EML proposed several projects, working with me as appropriate, but very few of these met approval from management above my level. The Comprehensive Radiation Sensor project, for example, was disapproved, even though NY City officials were very interested in it. Management decided that many projects were not within DHS's mission, and, indeed, this might have been true in some cases, although I disagreed with their assessments in others. At this point, I sensed a growing difficulty in the relations and communications between EML and S&T's management.

By spring 2005, as we were still working on programs and budgets for FY05, which had begun 6 months earlier, little remained of what EML had initiated post 9/11. Technical assistance and training for local officials was cut back by two-thirds. Other proposals were rejected in their entirety.

In addition, a bit later, a new project, involving EML, was requested by S&T's Portfolio Manager for Radiation and Nuclear Countermeasures, Dr. Sonya Bowyer. This effort was called "reachback." It proposed using EML scientists (together with scientists from Brookhaven National Laboratory in Long Island) to provide assistance to local officials and responders, when their radiation monitoring equipment produced alarms. The general idea, which had been conceived much earlier, was to have a process in place to deal quickly with inevitable false alarms. Experts from the labs would provide advice to the responder in real time in analyzing the alarm. On those few occasions where they could not resolve the alarm, another level of reachback would be provided by the national weapons laboratories. This program was to serve the New York region. There

were efforts to make similar arrangements with other laboratories for other regions of the country.

Fortunately, reachback has now been resurrected by the Domestic Nuclear Detection Office (DNDO), located within DHS, but independent of S&T. I understand that this work is about to be realized, both regionally and nationally. However, I am told that there are still problems in that EML was experiencing difficulties in getting approval to purchase a few hundred dollars of equipment to enable their participation. I hope this has been resolved.

### *My Resignation from S&T*

Committee staff have requested that I recount the story of my resignation from S&T. In most respects, this is not an important matter. However, the reasons that led me to resign may be of interest. With your forbearance and for the record, here is the long story.

In March and early April of 2005, I had to spend much time explaining the detailed costs of several EML projects. I was asked to justify detailed expenditures, at a minute level, for several proposed ideas. This was demanded by an ORD colleague, Dr. John Clarke, who was supposedly in charge of EML as a facility. It was disturbing to me that the facility manager was deciding at such a nickel and dime level how much each R&D project should cost and whether it should proceed, since this should reasonably have been the purview of the program manager. However, to maintain comity, I took time away from far more complex and larger projects at other laboratories, for which I was also responsible, to try to accommodate his requests. In the end, since I had those other demanding tasks to take care of, and since this exercise was draining my time over relatively small matters, I suggested that Dr. Clarke take over the whole set of EML projects, with the exception of a few that I had been told (by Robert Hooks, Deputy Director of ORD) had already been approved at the Office Director level.

One of the exceptions was the “ship effect” project, being handled by the excellent physicist I mentioned above. I had approved the project, but Dr. Clarke somehow was able to place a hold on the money, because he objected to the purchase of a neutron detector that was included as part of the work. Dr. Clarke insisted that he had this right. He further stated that he could not approve such an expense unless we could show that the detector could be used after the project’s end. This demonstrated that Dr. Clarke had no idea of how research and development is carried out: if a project is approved, you buy the necessary equipment to carry it out, whether or not you can find another use for it later. The cost and need of equipment are factored into the approval process. Indeed, one usually can find another use for equipment and this case was not an exception: we could have. The impression was clearly that Dr. Clarke was trying even to derail a project already approved at the highest appropriate level.

Having vociferously defended this project earlier, and since I had been previously assured by Mr. Hooks that this project had indeed been approved at the Office Director’s

level, I was quite properly outraged. I sent emails that included my direct supervisor, Dr. Gerald Parker, and his supervisor, who was Mr. Hooks, but they brought no response. Finally, I received a response from Mr. Hooks on March 28, 2005, to the effect that Dr. Clarke and I had to work this out. This contradicted what Mr. Hooks had told me about the project's approval a week or two earlier. A further request to Dr. Parker for clarification elicited no response whatsoever.

At this point, I decided that S&T/ORD management was broken to the degree that I could no longer perform my job, and I had to leave my position. On April 4, I sent an email with my resignation to my chain of command, including Dr. Parker, Mr. Hooks, and the Office Director, Dr. Maureen McCarthy.

It turned out that I was correct in determining that management was broken: within 3 days, Dr. Parker summoned me to his office and handed me a "Letter of Counseling" – essentially a reprimand – for daring to resign, and threatening me with reprisals if I continued such unreasonable behavior. I was also chastised for objecting to Dr. Clarke's overstepping his authority. This divorcement from reality was noteworthy.

Incidentally, in nearly 20 years of government service, I had never before received a reprimand of any sort. I have, however, received a number of commendations for my work, both verbal and written.

Naturally, I left S&T as soon as I could, within two working days, and accepted a position with the Domestic Nuclear Detection Office, remaining there for the rest of my federal service, and retiring on September 30, 2005. Indeed, most radiological work was already being transitioned from S&T to this new office. The working environment there was quite satisfactory.

Afterwards, I was happy to discover, the "ship effect" project had been approved in its entirety, probably as a result of the furor. But, to keep the project going as it should have, I had been forced to resign in order to draw sufficient attention to the matter.

### Conclusions

It appeared to me that in 2005, S&T management was trying to squeeze EML out of existence by turning off projects one by one, so that it could finally be asserted that the lab had no function. It became increasingly difficult to obtain approval for any expenditures beyond the basic minima of salaries and benefits, heat, light, and rent. Further, EML was not permitted to replace staff departures, and the number of personnel has shrunk from 60 in 2003 to 34 today. I cannot prove there was an overt intent to close the lab; indeed, Mr. Hooks assured me at the time I left that this was not the case, but Occam's Razor (adopt the simplest hypothesis that satisfies all the known data) indicated to me strongly that this was, in fact, what was happening.

EML still exists, to my knowledge, in great part because DNDO is using some of their personnel for projects in the New York area. Perhaps, since responsibility for radiological and nuclear issues has transitioned to DNDO, it might be appropriate for EML to come entirely under its aegis.

If EML were to remain in existence, my remarks above contain some ideas on what I feel it might do, and how it might make a significant contribution to homeland security. Even at its current, depressed, levels, it can be successfully resurrected, if a clear mission is articulated and appropriate management is applied. I do think this is possible. Some changes will be needed, of course: for one thing, it should probably move to a new venue in the New York area, perhaps, as I noted above, within a DHS-owned facility.

If its mission would include functioning as the focus of DHS's technical capabilities in the New York area, beyond radiological and nuclear issues, it would be necessary to hire some new scientists and engineers with expertise in chemical and biological countermeasures. This would transform EML into a broader and more capable organization. One could also imagine adding collaborative efforts with another S&T laboratory, the Transportation Security Laboratory in Atlantic City, about 100 miles to the south. TSL specializes in explosives detection, and joint work in testing this sort of equipment in New York City would probably be a useful synergy. If EML were to be broadened in this way, one could argue that it should remain within S&T, which, having recently been reorganized, might be more receptive to such a concept than it was in the past.

#### *An Additional Observation*

There may be a broader issue here.

In 2003, two laboratories, EML and the Plum Island Animal Disease Center (PIADC), were relocated from other agencies to S&T, a new organization within a new organization. I understand from the press that there are now plans to close Plum Island and relocate its activities elsewhere, probably with a largely new staff. It is not surprising that, amidst all the difficulties of establishing new, nested structures, and under the watchful eye of a fearful public following 9/11, these two laboratories have experienced serious difficulties while trying to fit into a new Department and to develop missions rather different from their previous ones.

However, I am also concerned about a third laboratory, the above-mentioned Transportation Security Laboratory (TSL), also involved in post-9/11 turmoil. TSL has just (2006) transitioned to S&T from the Transportation Security Administration (TSA), which is, of course, also within DHS.

TSL is not a minor player: it is the world's gold standard for developing and certifying explosives detection equipment, especially as applied to transportation security. Virtually all security technology in U.S. (and in many foreign) airports today have been developed

there. Vitally needed improvements are being developed there right now. The lab and its staff are impressive: I urge the committee members to visit it.

Unfortunately, in the bureaucratic turbulence following 9/11, TSL has been moved between agencies twice. Its budget has undergone wild fluctuations, both up and down. This year, I am told, their budget has dropped by a factor of two from last year. This unstable situation, both institutional and fiscal, is destroying morale there; some scientists have left, others may well leave soon. Staff have been reduced from about 80, a few years ago, to 54 now. Like EML, they have not recently been able to hire new scientists or engineers. There are rumors that its equipment certification unit, which has been looked upon to provide aviation security equipment standards around the world, may be asked to raise money from vendors to continue its effective existence, beyond the fees currently levied on those asking for certification. There are other rumors that this federal laboratory, staffed by federal employees, may be required to compete for its existence with national laboratories (that have relatively immense levels of staffing, much other funding and other missions) and with the private sector.

I hope these tales aren't true. The federal government's ability to issue standards for explosives detectors should not depend on a revenue stream. Moreover, TSL and other federal laboratories are part of the federal infrastructure: they are federal assets, run by federal employees, who have loyalty to the mission, and who do not have to keep an eye out for profits or for obtaining the next contract. This laboratory is especially needed to provide for the Nation's security, particularly regarding air travel, where we all know there is a serious, ongoing terrorist threat.

I trust and hope that DHS will now be able to provide TSL with steady and predictable funding and a consistent vision, so that it may continue its excellent work. I fervently hope that TSL will not be subject to the same perturbations that the other two laboratories within DHS have endured during this difficult period of adjustment.