

OPENING REMARKS

AND

AGENCY OVERVIEWS

1983 Asilomar Conference

Opening Remarks
by
Jim Kerr

I think it's important to look in both directions in meetings like this. A lot of distinguished alumni are back. The direct lineage of these meetings goes back to early meetings with the fire research contractors that we held with our contractors at IITRI in 1962. Various sponsorships, or managing organizations, were represented at the original 1962 meeting and at the Forest Service when we met in Riverside and at NRDJ in San Francisco. We first came to Asilomar about 1966. Outside of some state agencies, we have had the longest run of any organization meeting at Asilomar. About 20% of you are here for the first time, and that fraction of new people every year is quite healthy; otherwise, the program tends to get a little stale and we can't have that. We think that gatherings of this type are absolutely essential to educate us. We regard this as an important management tool for the FEMA research management people. Certainly we have to exchange information and cross-fertilize.

FEMA started under the Carter Administration by putting 5 agencies together. Under the Reagan Administration FEMA does have a mandate to succeed and that is of real importance. We are supposed to move ahead and make the pieces fit together with the mission that we have. As some of you heard me say, we are responsible for everything from "hang-nails to holocaust" and everything between. It's an incredibly broad mission, and at the same time Dr. Giuffrida feels that he does have a mandate from the President to succeed. The President feels that having the civil population prepared to cope with disaster, of whatever flavor, is in fact a part of the strategic equation. He also feels that it is very important that we have our international connections, so we have people here from across the water.

The Research Office is in the National Preparedness Program Directorate of FEMA. FEMA has three principal program areas, the training and fire programs, the State and Local Programs Directorate which interface with the state and local authorities to carry out programs. The National Preparedness Program Directorate is supposed to be at the cutting edge, the place where all the brains are and where the program and policies are developed. There is a very good rationale for having this office in with our brethren who take care of other national programs, industrial preparedness, and that sort of thing. The Research Office with all this coverage sits there with all these National Preparedness Programs. It's supposed to provide basic science input to all the rest of the agency. Each element of FEMA has both the privilege and the duty of funding its own applied research program. For example, if Don Bettge, who is in the Civil Defense Division, wants to do something along the lines of countermeasures, say blast hardening, it's up to him to fund it, and you go after him for money, not me. If he runs these things through me, I have a computer search done, and then we can find out where some other work has been done, because if its applied science, it is not run through the Research Office. So if Don finds that he can't do his countermeasure program, because the physics haven't been done yet, then he's free to call on the Research Office to see about funding the physics.

The Research Office does have to do the coordination of R&D for FEMA. It serves as a focal point for science and technology support. Those are our principal jobs and that's where we spend most of our time. Part of our R&D program is performed within FEMA, resulting in papers which we prepare ourselves, as distinguished from contract work. There is now a working group in FEMA known as the Issues Group. These are presidential appointees, of which we have four or five, and they meet every week to address real issues. Some of the issues, of course, are how do we play the R&D game, how do we allocate funds, and how do we manage. It's also interesting to look at the history. The best history and certainly the oldest agency of the five that went together to form FEMA was the Civil Defense Agency. We had the Berlin Crisis and the Cuban Missile Crisis. Budgets responded to political events rather than scientific breakthroughs.

How should we mobilize the nation in time of stress and crises and international tension? The President decides that he wants to upgrade our preparedness. What should the research role be? We look at the history of World War II, and we find that President Roosevelt discovered that there was science around, and that the science industry was going to start expanding. There had to be a fairly respectable establishment with a management role. This was put together on a crash basis, and the legacy that we have is the excellent R&D program of today. We have a Science Advisor in the White House with a half dozen other staff, and nobody else worrying about science in the civil sector. We have a bit of an in-house study going on right now. Capt. Jarratt is working on that problem, and we think that that's a place where the National Defense Executive Reserve could play a big role. I thank those of you who responded last year to my recruiting pitch to sign up for the Executive Reserve. It is sort of like the National Guard without a uniform. The mobilization is something that FEMA has to work out; I hope our plan will hit the streets by the end of the year.

What is the keynote? I have suggested that we concentrate on the pursuit of excellence. That's not a bad way to start this conference again, but perhaps that's a little too vague. I think that we have to concentrate on collating our knowledge, synthesizing what we believe and understand, and looking ahead in a fashion so that we can provide the scientific guidance that not just FEMA but people who work in the civil areas can use. We have opportunities here: there are all the papers which you will hear; and the workshops that are the heart of the week's work. The heart of the conference is the interaction that we achieve, and that happens most in the workshops.

The proceedings are evidence of where we think we stand on any given subject. We read them carefully and those of us here naturally have an awareness of what is going on, but people throughout the Agency look at what's been said in the workshops, and this does tend to move science down the road.

BOB LEVINE - NBS
Opening Remarks

Our role is going to be limited pretty much to the more scientific areas of fire science in the future. Right now we have about 100 people on our staff. In terms of budget, we get about \$3.5M from other agencies (including FEMA) and about \$5M internally. With our internal funding, we operate a grants program that amounts to \$2M which goes to universities. Thus, our in-house program ends up as about half contract work. We try to stay in close contact with the real world, by being in direct contact with people who must comply with regulations.

We perform fire property tests on full-scale rooms with real materials and furnishings. We also serve on a number of advisory panels. Our organization is made up of groups, each of which represents a thrust area. Some are very basic, such as fire gas toxicology, and others are more applied, aimed at getting materials properties that can be put into computer models. Other thrust areas include, but are not limited to, extinguishment and suppression phenomena and techniques, development of a more quantitative fire safety evaluation system, and quantitative fire risk analysis. This has many tasks, similar to the nuclear people, but we are trying to go beyond the simple cost effectiveness justification. We also perform laboratory work in support of arson studies.

Some recent tests include flame spread rates as a function of impinging radiant heat flux, and these results can go into computer models, too. The expression developed works on a number of different kinds of materials, including those found in airplanes. In the area of 3D field equations applied to plumes, our Center of Applied Mathematics within the Bureau has developed a model for use in rooms in conjunction with Fendell and Carrier.

In our grants program, which is \$2M as I mentioned earlier, we have about a 25% turnover each year. Flame spread, sooting, turbulent diffusion flames, charring, entrained flow in corridors, radiation from flames, combustion efficiency, and radiation from soot are typical study areas that are currently funded. We monitor these activities with people who are doing similar research in-house, so close contact is maintained.

We are also putting more effort into working with the fire community in a more organized way rather than just hoping it will happen.

HAL ANDERSON - U.S. Forestry Service
Opening Remarks

I'll describe briefly what has occurred in the past three years and what we anticipate in the coming year. The Forestry Service is made up of three branches, one of which is Research. The funding has declined some in the past few years. In the fire area, we have 77 people at the research stations throughout the country. There are another 38 fire-related scientists who are funded from other parts of the Forestry Service. Our fire research budget in FY83 is \$8M, or about \$2M less than in FY81, and we anticipate another decline of about \$1M in FY84.

Our station, the Intermountain Station at Missoula, Montana, received about \$2.5M this year, and fire behavior received about \$1M. We are trying to speed the utilization of research compared to our typical technology transfer rates of the past. We have developed predictive fire models for slope effects, moisture effects, and wind-driven fires. This model is being used in officer training and in the training of other specialists to make it operational by next year. Fire effects R&D work deals with recovery of a burned over area, mostly from the viewpoint of the biologist. The fate of fauna, vegetation, seeds, micro-organisms in the soil, are each important.

We have two other fire labs in the US: one at Riverside, California, and one in Macon, Georgia. At Riverside, they are looking at fire in chaparral. They study fire management, economics, fire prevention, and meteorological effects. At the Macon lab, there are three projects: combustion processes that involves toxicity and particulates production; adaptation of fire science developed in the West to the needs of the East; and fire-weather data systems. We also have several stations around the country doing other kinds of forestry research.

We're trying very hard to do the best work we can and take advantage of information exchanges such as this to make the most of our shrinking budgets, just as others have probably experienced.