FIRE, WATER AND THE AFTERMATH: A Public Forum on the May 2000 Cerro Grande Fire and Its Effects on the Rio Grande/Bravo Watershed

Presented by: Concerned Citizens for Nuclear Safety (CCNS) and the Nuclear Policy Project (NPP)

Saturday, July 8, 2000

The Eldorado Hotel

Santa Fe, New Mexico

DEFINING THE CONTEXT: 9:00 a.m. to 12:00 noon

WELCOME — Anna Hansen, CCNS Chairperson, Santa Fe, NM

Suzanne Westerly, CCNS Acting Executive Director, Santa Fe, NM

Anna Hansen:

¥ Historic moment; New dialogue for change at Los Alamos National Laboratory (LANL). Main point to have independent oversight of fire with LANL, like CCNS has with our Clean Air Act lawsuit against the Department of Energy (DOE) for non-compliance at LANL. Thanks to speakers and to Leslie Larsen. New direction for new millennium to be in dialogue, and beneficial to community. CCNS has an incredible new Board; introduced those present. Excited about direction and what we can do in future. Introduced Suzanne.

Suzanne Westerly:

¥ Recognize Anna Hansen and Leslie Larsen. When fire started CCNS was inundated with phone calls from concerned people. Those in Northern New Mexico wondered what was in the plume. Still lack data today; of great concern; also people's health who were in the plume; want to include those upwind. Now to deal with what will be coming down in the rain. White Paper from conference will be on web site and also available by mail. Recognize board and speakers. Also recognize Governor Wilson Romero of Cochiti Pueblo and Carl Tsosie of Picuris Pueblo, representing Governor Eagle Rael of Picuris Pueblo.

INVOCATION — José Lucero, M. Ed., Santa Clara Pueblo, NM

Suzanne Westerly: Many were upset; now here for healing.

Governor Wilson Romero of Cochiti Pueblo:

¥ This is truly a wake-up call. Thanks to Jose Lucero and CCNS, Marian Naranjo and Vickie Downey. Came to hear the concerns; our Pueblo is very concerned about the aftermath. In contact weekly with LANL about rehabilitation -- greatest concern is runoff into Cochiti Lake. Hopefully can begin to get some data from LANL and Cochiti Environment Department. Major concern is water coming -- downstream we have farmers planting -- animals are drinking the water and eating the vegetation. From our cultural standpoint; we raise these animals for our needs; concerned about the effects. Thank you for having me here today.

THE RIO GRANDE

José Lucero, M. Ed.
Santa Clara Pueblo, NM

¥ Introduced himself: White Corn Family; Winter Clan. Beginning a cultural study of the Rio Grande. Referenced what Governor Wilson said; things that can't be measured; who the river is, its spirit. Three years ago in July a DOE and NM Environment Department meeting in San Ildefonso. He related a dream he had at that time; the government agencies wanted to apologize for something they had done; the sorrow and shame. On the fringes of this technological area. After the fire looking through his papers he came across this presentation that he made. We're in it now. What do we do? How do we begin the process? Sees the concerned people here. Recognize those here who show their concern as the important ones to carry on the responsibility of caring and sharing.

FIRE: Fire is the layer that we all walk on; in the core of the earth there is fire. We learned to work with that. **The four races of man on the earth today have responsibilities: Black people: responsibility of air; Yellow people: responsibility of water; Red people: responsibility of earth; White people: responsibility of fire.** "Don't play with matches, you may get burned." "Light the stove, because it's getting cold." Two ways of looking at it: playing with fire and working with it. Have to understand the responsibilities and consequences. Power; sun, intense, warmth. The fire has changed a lot of things, like the cold changes things. As the fire burned in Los Alamos there were many things that were burned, changed and sent out into the air. We are concerned because we don't know what's up there. During fire went to town meeting in Española; was concerned about breathing it. Saw a lot of chaos and confusion and asked**, "Where is the common man; where is common sense during this time?"** Television telling us what was going on with the fire; Governor Johnson and Congress people were there. Firemen were down in those areas. No masks or protection. So I asked again, "Where is the common man with the common sense?" It is premature before these things are looked at for people to be in these areas. Fire was brought out of these mesas in the 1940's; what were they to do with what they were producing, but dump the materials in the canyons. Trees and plants were taking up these things systemically; and with the fire they were changed; released. **We need to understand the workings of the fire. Need to know the truth of what was released with the fire.**

WATER: Water is a mediator; on top of the core of the earth; helping to keep things in balance. Was at headwaters of the Rio Grande with prayers asking: “We need you with us because you are lifeline of the Mother. **Need to have continuous, safe flow of water.** We're dependent on you; without you, will have more intensity of fire.” Water is very important. Santa Clara Pueblo is north of Los Alamos; still situated on the 60

square mile water aquifer, which we are dependent on. Have many concerns with water; low point now in acequias and mountains, both Sangre de Cristos and Jemez, have gone dry. Headwaters, not much activity. Aspens ready to turn. Have to again remember the prayers**. We're not alone; we're connected with the plants, animals, everything on the earth.** Have to understand our responsibilities, to come together like this to share, to let others know.

AFTERMATH: Dictionary says that is aftermath is the "second crop; the result and consequence, or an unpleasant one." That's where we are now, we are upset and angry. But have to realize where we are at today and what we are to do. Looked further at "afterthought" -- a thought coming too late after the occasion for which it was; too late; "aftertime" -- the future, the time to come. **This is what we are here for -- to learn the truth, for the common man to stand up and tell the truth; to not be ashamed or afraid, but work together.** If we wanted to we could destroy the earth right now by pushing the buttons or other forms of destruction. But remember, **we have to change direction; because sooner or later, maybe sooner, we are all going to need each other.**

OVERVIEW & FACILITATION

Toby Herzlich, Professional Facilitator
Santa Fe, NM

Mike Finney, Ph.D.
Management & Organizational Consultant
Santa Fe, NM

Mike Finney:

¥ Cite José regarding, "Where is common man with common sense?" That is one of the primary objectives today, the initiation of a citizens' oversight strategy. The problem with some non-profit organizations is that over time the scientists and litigators end up running a campaign. CCNS wants to return this process to the community with guidance from the experts, rather than the experts leading. **Bring common man with common sense back into the loop.** Today is to initiate a citizens' oversight strategy. Also, today is a public education process as an informed public can do a better job of initiating a valid oversight strategy. Consideration and information is more important than fear and anger. Experts here today will give perspective. People must understand ecological and health consequences of the fire. Water as mediator, as José said, need to pray for the water. You are all here today praying for the water. After you hear from the experts, opportunity to ask questions and get further clarification and understand what issues should be addressed following the fire. At early meetings, people brought up issues the experts hadn't thought of, such as organic farmers. José's definition called "aftermath," a second crop, bitter consequences of something that has happened. Have to figure out how to get nourishment from this bitter crop, to learn from it. **Not a community organizing event, but rather a public education program.** Tables out in hall with organizations that exist. Not a public hearing either; not here to judge or find fault. **Bridge building effort; must be collaborative and participative by all key parties in order to succeed.** Intention to present well-rounded perspective on the issues of the health of the Rio Grande from the headwaters down to Mexico. This is an international issue.

Toby Herzlich:

¥ Underscore that this is an educational effort. **CCNS beginning a long term community partnership and dialogue with LANL on protecting the watershed's health and having a citizen-based, community-based citizen oversight effort**; this is the first step. Today is about listening, and becoming fully informed by experts. Want to create a shared knowledge base.

Polled audience: live/work in Rio watershed? Scientist? Acequia used for farming? Backyard vegetable grower? Lived in NM whole life? Ten years? Intend next 10 years? (Peter: but what about the people who are unsure because of this issue?) Currently involved in watershed group or involved with nuclear issues? Rely on water? All questions illustrate this is a common, community concern. Monitoring now to come into everyone's realm. Asked to turn to neighbors to find out why they came today. Then asked for one or two to speak. Why are you here?

¥ Audience:

Concerned about people's health.

Speak for the common man or woman.

To bring artistic and human perspective today that is lacking in culture as means of containing feelings and creating something of beauty as symbol for future.

Give voice to the animals and plants who can't come here on two legs.

Toby Herzlich then went over the agenda. What do you feel needs to be focused on? What needs to be monitored? What do you need to know? Then she went over ground rules for presenters and audience:

Really listen with respect.
Respect time allotments.
Ask questions to broaden everyone's understanding.
Take the energy of feelings into work proactively.
Focus on building partnership.
Blame the problem, not the person.

Introduced panelists: Robert Alvarez, Keith Easthouse, Elaine Hebard, Jon Asher, Louie Hena, Owen Hoffman, Jim Ruttenber, Chellis Glendinning, and Deb Hibbard.

FRAMING THE ISSUE

Robert Alvarez, Director
Nuclear Policy Project, Washington, DC

¥ Personal aside: Over 25 years ago started doing environmental work in DC; first one was on water issues in NM. Full circle. Here to present national perspective; what it means in a larger context as well as for LANL. Recent wildfires at DOE nuclear sites are

among the more serious nuclear emergencies to happen in the US. Nearly 48,000 acres near LANL destroyed, but also Hanford; one of the most contaminated areas in the Western Hemisphere. Bookend facility to LANL. 440 billion gallons of contaminated liquids there; like a lake the size of Manhattan 120 feet deep. Wildfires of national concern; can release large amounts of contaminated materials -- wildfires are so unpredictable, best efforts can't control them. **Very important lesson is DOE is ill prepared to deal with wildfires at DOE sites. Tons of highly unstable plutonium and other materials are stored around the country in deteriorated facilities with degraded safety systems. Oak Ridge stores highly enriched uranium in old wooden buildings built in 1950's. Could turn Eastern Tennessee into a crater. Large and mostly forgotten contaminated areas are potentially vulnerable. At least 1 million cubic meters of contaminated topsoil at Plutonium Valley, Nevada Test Site. Imagine a brush fire there and what that would mean for resuspension of plutonium and effects on downwind areas. Major drought now in southeastern US, of historic proportions; have major nuclear facilities there. Savannah River facility has 2/3 of DOE's nuclear waste stored on several hundred miles of drought-stricken forest land.**

LANL, fire over 30% of site, 600 dump sites, canyons. Denuded mountains, now with rain could be flashfloods to wash contamination into largest source of water in NM. LANL is very concerned, no one is complacent about this. Everyone is in the same boat, both on and off site. Learning as we are going. LANL has done some positive things; have removed substantial amount of tainted soil and are building dam. Also lessons to learn. Rain 10 days ago; 0.7 and 0.8 inches, volume and velocity of runoff greatly exceeded LANL's computer models, and LANL's models greatly exceeded the models of the Interior Department. This fire is not an episodic event of just one rainy season; this will continue for many years due to the denuded mountains.

¥ Untold story: important role of citizen's groups, such as CCNS, and DOE's responsiveness to these concerns. LANL took the criticism seriously and removed dry vegetation at Area G, where preponderance of surface storage is; had they not done this in response to CCNS there could have been a much more serious environmental problem. The interaction between CCNS and the LANL is important for making the necessary measures towards public health and safety.

¥ Hanford: perspective -- fire swept over inventory far more contaminated than at LANL. **During the last decade when nuclear facilities closed down; left big unstable mess, unfunded mess, including tons of nuclear materials owned by weapons program -- due to cost competition with weapons programs, put on back burners. Delays continue to plague these efforts as materials are stored in unsafe containers and deteriorating buildings, some dating to World War II; although the fires did not threaten these materials, this needs to be a wake up call; no room for complacency. These fires, particularly at LANL, will require rethinking of priorities at sites around the US.**

Took a look at LANL's Comprehensive Site Plan for 2000 -- where they want to spend money. Asked for $4.4 billion of which $4 million was for environmental activity. Mission statement said this was “to protect the nation.” Now we have to look at protecting the Rio Grande. This is LANL's mission now. **LANL must be put on the National Priority List**

(NPL) for the Superfund program. It has not been on the list for reasons of political and national security, not for reasons of merit. "This is a severely contaminated area, make no mistake about it, it must be put on the NPL list." (Applause.)

Cleanup of sites heretofore not considered important are now going to become very important as there is a high probability that they will be along flood plains and in areas of disruption and will impact the largest freshwater artery in NM. Should cause rethinking of priorities. **Mission of DOE is not just to protect nation by providing nuclear deterrent; given the nature, the magnitude and profundity of environmental contamination around the country, are to protect regional water supplies. Must be imbedded in the missions and priorities of these sites.** (Applause.)

TIME BOMB IN THE FOREST — Keith Easthouse, Associate Director, *Forest Magazine,* Eugene, Oregon

¥ 1991 to 1998 covered LANL as environment and science reporter for *Santa Fe New Mexican*. Now with *Forest Magazine*. Wrote article entitled "Time Bomb in Forest." 30% chance fire of 5,000 acres or larger would break out by 2003. That is the precisely where Cerro Grande blaze began. DOE study said it would create great risks. Flash flooding would scour out canyon bottoms and contaminate Pueblo lands and the Rio Grande, drinking water of state. Story got national media attention after fire began. Fire danger at LANL has been obvious for decades. 1954 fire broke out west of LANL; 1977 La Mesa fire torched 16,000 acres southern flank on LANL property. 1996 Dome Fire came within 2 miles. 1998 Oso Fire at Santa Clara. String of near misses, given this, amazing so little was done to reduce fire hazard at LANL.

LANL finally started thinning after Dome fire, along western edge and near vulnerable facilities; but even though late, may have prevented a major radiation release. Firebreak constructed in early to mid 1990's may have reduced the extent of damage to the Los Alamos townsite from Cerro Grande. Still, more could and should have been done. Santa Fe National Forest did nothing to thin out the area west of Los Alamos. Proposal after 1996 by Bill Armstrong to burn and thin 19,000 acres west of LANL was given no consideration. In fact, Rich Juans said it wasn't important; more important to him was recreation area of Jemez Mountains. Also noted that nothing has been done to thin out the Santa Fe watershed. DOE also did not appreciate the fire danger at Los Alamos. 1997 draft Site-Wide Environmental Impact Statement (SWEIS) said nothing about forest fire risk. LANL did respond finally, but in his mind it is incredible that the community had to complain to DOE to get that included in the SWEIS. Looked into jumbo jet crash and earthquakes, but not fire, which is far more likely. Nonetheless, the accident scenario was done and included as an appendix, although deficient, makes quite clear that the burning of outdoor contaminated areas would very likely release radioactive and toxic chemicals into the air. **The Cerro Grande Fire burnt outdoor contaminated areas. "I think it's time the Lab came out and admitted what is almost certainly true; radioactive and chemical pollutants got out into that smoke plume.** (Applause.)

LANL did almost nothing to prepare for such an event. Early 1990's did model on flash floods, but did not address the mountainsides and the canyons. That model was criticized by NM Environment Department because it underestimated flash-flooding at

even forested mountainsides. Since the fire, LANL has put together new models. Recent rains illustrated that even the latest ones are underestimating the floods. Had LANL years ago looked at the possibility of floods, might have been more prepared. Eleventh hour efforts of dam building and so forth now might not have been necessary. Cost around $7 million for this dam; no public or environmental review. In area of Mexican spotted owl nests. If done years ago, could have been done with public involvement and environmental review. Had LANL's environmental cleanup program not fallen years behind schedule, canyons would not have been in this shape and not so much a threat to Indian lands and the Rio Grande. If we don't get a detailed picture now, won't be prepared in future. Multiple actors took place in creating this scenario. Cited Senator Pete Domenici more than anyone as he could have provided the funding to reduce the fire hazard to Los Alamos. Not enough people foresaw the danger that the forest posed.

WATER QUALITY & BORDER ISSUES Elaine Hebard, Attorney

¥ Would like more to focus on "The River and Neighbors." Background: when we talk about water, remember that there is no more water now than when the world was formed. 97% in salt water; 2% in ice caps; therefore 1% of all water to service all of our needs, present and future, environmental, human. According to the World Water Commission, almost a half billion people on this planet now don't have sufficient access to potable water. Projected to increase to 2.5 billion by 2050. To feed the 3 billion more people expected by 2025, 20% more water for agriculture will be necessary. Competition for water will grow with cities, agriculture and environment.

Map of Rio Grande/Rio Bravo watershed fails to show that for the lower basin two-thirds of water for it comes in from Rio Conchos from Mexico. 13 million live within the whole watershed. Statistics say that by 2030 that number will double. From Colorado to Brownsville, Texas, to the Mexican border. In May's border papers, border-states declare drought. Environmental Protection Agency (EPA) claims solving water crisis will cost millions. US claims Mexico hoarding water. Rio Grande declared 7th most endangered river. Juarez is the most contaminated area on Rio Grande.

¥ Juarez: can't serve at least 5% of its current population of 1.5 million. El Paso, TX 750,000 people; using about half river water. Dona Ana County, NM 150,000 people; Las Cruces, NM uses no river water but expect their water will run out in 45 years. No funding or contracts in place to take any water from river. Reverse pyramid of water available to population size of this just described. According to Mexico/US water treaty, Mexico takes 60,000 acre-feet for Mexican farmers south of Juarez. National Water Commission says to expect severe water quality problems by 2004, cites Juarez. El Paso thinks it has 30 years left on its aquifer. 43% to agriculture interests in El Paso; 57% to agriculture in our state. El Paso sued to put in approximately 237 wells in Dona Ana County; settled saying NM would provide the water some other way, but NM hasn't. El Paso will switch to surface water to meet their needs. Juarez is looking to see how it can get more water, will probably start using surface water rights; need to start building treatment plants. This year first sewage treatment plant for 1.5 million people. Needs are to double by 2030. Some areas are seeing 200% birthrates every year. **As water declines you can see that this is going to be spawning competition. 50% of water**

south of Elephant Butte is going to agriculture. If that is switched to industrial or urban, what does that mean to quality of life and economics, among other issues?

¥ Albuquerque is growing and needs more water. Tradeoffs up and down the river. Be creative when looking at neighbors and watersheds. 1/2 of all non-agriculture use is equal to amount of evaporation off of Elephant Butte, 180,000 acre-feet. Maybe, using Los Alamos watershed as example, there could be a way to keep water stored upstream. As we think about the water-based public health and ecological consequences today, also think about this as being neighbors, but how can we all share this vital resource. (Applause.)

TRADITIONAL LAND MANAGEMENT — Louie Hena, Tesuque Pueblo, NM
Environmental Director, Picuris Pueblo, NM

¥ He drew a spiral pattern from Bandelier; same as on thumbprint. Brothers and sisters of nature. In the sky, pattern is Milky Way. In river, it is whirlpools. Storm pattern on news; same. Hurricane; dust devils. This pattern, take and spread it out, get a wave, like the horizon; canopy along Rio, shrubs by Rio, it is the Rio Grande, the Chama River, the Pecos River, the snake, the lightning bolt, within ourselves. This is our relationship. Take this pattern. He then drew stair steps going up both ways under the wave pattern; plaza in center, community grows outwards from center of stair steps. For centuries we have observed how it rains here. We did not capture the river then. Started to build structures to retain and capture rainwater along the mountainside. From Taos Pueblo to the West Coast to Central America. These structures capture rain. In Picuris, the boulders on these structures are huge, well defined, so when it rains it's captured. Below this is the aquifer. Now we're building homes and roads, an easy way for the water to just run off rather than be used. The home destroys the structures below it to capture water. The water eventually runs back to the Rio underground. There is 40% recharge of surface water and 60% recharge underground. This is why there are springs here. Building homes in country and roads diminishes these springs. We farm 3 months of the year; then 12 months. They captured snowfall, rain, everything. There are no grasses in the forest to hold back the water. We need to do something to bring the fire to do this work. Structures are holding back the water.

¥ AIR: Picuris was in the main pathway of the plume. Ashes were falling in the community. What is going to happen to the farmer's plants, and the people, the kids? We farm all the way up the slopes. Lists the plants, the trees, the animals, all the concerns of the communities; we are our brothers and sisters with nature. We need to step up, look at the future. My braid, like the spiral, is intertwined together and strong. We need to work as a community. **Pollution knows no boundaries. Pollution knows no colors. We are all in this together and we have to work together. This fire brought us together to care about the Earth Mother, who has been crying for a long time.** Let's focus on a global view so a better future for Earth Mother and for younger generations.

Introduced several in the audience. All part of the spiral. Hope we can get together again to continue gathering not only for this area, but for this Earth Mother.

ACCOUNT of WHITE ROCK CANYON,
JULY 4, 2000

Jon Asher, River Guide
Kokopelli Rafting Adventures, Santa Fe, NM

¥ 10 years running river along White Rock Canyon. Has been a neglected stretch of water. One of many areas of concern, as far as quality of water and exposure of customers. Was organizing a kids' camp in White Rock Canyon and guide told him something that caused him to cease all operations. Morning of June 29, camped at Pajarito Springs, usually a gorgeous clear water spring below Pajarito Acres at White Rock. That morning the spring was black, and there were no rain events right there the night before, but it had rained higher up in the region to cause this. Pretty awful. River was brown, muddy, flash flooding, not out of the ordinary, but of concern was that besides the usual animal smells (mainly cowpies), there was smell described as combination of that and household cleaners, so there was something else in the river, whatever the cause may have been. Hard to keep kids in boats -- they were swimming in river. Here to find out answers: Should I be recreating on this water? Exposing people to this? Operates from Colorado through Texas. Also member and proponent of Rio Grande Restoration. Wanted to present recreational use of the river as another consideration; people are down there on a daily basis.

Break

ASPECTS OF ENVIRONMENTAL TRANSPORT

Owen Hoffman, Ph.D., President and Director
SENES Oak Ridge, Inc., Oak Ridge, Tennessee

¥ His first introduction to the fire was yesterday on a tour; expertise in environmental contamination; has for 25 years dealt with aspects of radiation in the environment; prior to that was a Park Ranger Naturalist for National Park Service; looked into aspects of fire ecology. These come together in this presentation. **Has heard a lot of concern regarding impact of fire and potential of the fire for having moved on site contamination off site. Many ask, has this occurred? Unequivocally he can state YES it has. It hasn't been confirmed by measurements, to the best of his knowledge. May be below limits of contamination. The fires were hot enough and went through areas with known contamination that was resuspended in the plume. But indeed it has been moved off site. Have plants, animals and humans been exposed? Yes, they have. Are these exposures a significant concern? To answer that question we need information and data.**

Also, need to be able to interpret that data so we can answer for ourselves to what extent has there been a significant impact on the health of ourselves and the ecosystem. To gain confidence in that information there has to be an element of transparency and the information has to be credible. You have to understand it. **There must be opportunities for independent opinions.** Access to individuals who can interpret the numbers' meaning in plain English. **Ultimately there will be a need for community dialogue with regulators, members of LANL, with members of the community to discuss what levels of exposure are significant and what levels are truly insignificant.**

Have benchmarks to fall upon: regulatory standards, limits of detection, mathematical models. To what extent is the risk in the below-limits of regulatory levels? To what extent is there risk below regulatory limits of regulatory acceptability? How does it compare to general exposures from natural background and global contamination levels? To what extent are these exposures comparable to levels of exposure to other chemical contaminants, like chemical carcinogens?

To his knowledge, contamination present at LANL are involved with production of radioactive plutonium and americium, byproducts of processing of materials to concentrate plutonium; fission products, such as cesium-137 and strontium 90. These materials can move in the air and floods and are most often more hazardous in air than in water. Plutonium and americium are highly insoluble. Highly unlikely to enter municipal water supplies through filters. They are not readily taken up by the gastrointestinal tract, therefore unlikely to induce biological harm. **But inhalation of plutonium is the main concern.**

Not sufficiently knowledgeable about what goes on at or has gone on at LANL to say; but can say that **before the community can accept the conclusion that the risk may be small, there must be a gathering and dissemination of information; and hope DOE and LANL will aggressively pursue stakeholder involvement and independence in sampling to come to overall impact on human health and ecosystem.** Any questions on technical details, will be here today and tomorrow to answer any questions.

EFFECTS OF EXPOSURE
& RISK ANALYSIS

Jim Ruttenber, Ph.D., M.D., Epidemiologist
Department of Preventive Medicine & Biometrics
University of Colorado

¥ **How do you assess health risks from the fire and its aftermath? Newspapers and the like say the "risk is low." Which is ambiguous. People wonder what this really means. Important to de-mystify this and break out the components that are used to make these estimates. These assessments may be correct, but if public doesn't know how the calculations are made or suppositions that go into them, they distrust the results. And this kind of info has been used in the past to deceive the public and scientists. The idea of openness and dissecting the components of risk assessment is important.**

Risk is the probability of getting a disease or some health effects. Coming up with some estimates of exposure; and how much can actually get into the human body; and how do these substances get in the body to cause disease, based on research in other populations. Important for public and independent scientists to review.

Clearly environmental monitoring is very important to the estimation of risk; and how things have changed in ecosystems. Want to make assessments of exposures. Models with mathematical equations to predict what may happen in future. To help estimate future concentrations and health models -- as with flooding.

Epidemiologic studies deal with counting cases of diseases in populations and try to relate to exposures. With aftermath, goal is to understand how to prevent diseases in future. Opportunity to intervene and stop them before they create problems. **Have to be very careful about designing epidemiological studies.**

He recommends a concept called exposure surveillance. Designing an environment monitoring program that attempts to capture info about important chemicals that may expose the public and contaminate the ecosystem, designing a sampling system with scientific rigor that involves public and independent scientists in its design, and implemented with citizen oversight and that of independent scientists. The data from the system has to be released quickly because it is data that we would like to make decisions with, rather than analyze a year later. Timely reporting in a way that people can understand, understanding that there are different user groups: bottom line; some detail; all of the data. Exposure surveillance program can do that.

We have been doing this to reconstruct past exposures at nuclear facilities and Superfund sites. Environment cleanup with toxic nerve agents and chemicals. Communities there concerned about release to community. Such a program set up to do just what he recommends here. It is possible to do, very easy to do. **Once data is gathered, real issue is implications and how to make decisions. Can't decide without data. Then assign priorities,** whether 25% increase in river sediment, for example, needs to be a priority. Once there is data, the public can have input in them.

PSYCHOSOCIAL EFFECTS
OF DISASTER

Chellis Glendinning, Ph.D., Psychotherapist
Chimayo, NM

¥ **No one is left untouched by the Cerro Grande Fire. Not one person, plant or animal.** Everyone has a story to tell. My story is that I lost hearing in my left ear when I saw red blood smoke coming to Chimayo. Another shaved her head in grief. Another is a prisoner who refused to participate in replanting effort because of fear of contamination and risked losing his good time by doing so. All stories, whether of damage, heroism, terror or resistance add up to collective experience. Add up to "a new species of trouble" (Ky Erickson). Scale in mass society, infrastructure to hold it together. Because of involvement of, what Dr. Henry M. Vyner calls invisible contaminants, strontium-90, cesium-137, benzene, dioxins, plutonium, etc., that add up to a perpetration of invisible trauma.

Asked audience who had the following experiences to stand: feelings associated with past traumas; numbing or emotional paralysis; anxiety; depression; sense of helplessness; inability to concentrate; increase in addictive behavior; desire for flight; preoccupation with disease or death. When Hanford burned, were there flashbacks to the Cerro Grande fire? Unusual attraction to life affirming experiences, activities, symbols? Experience enhanced appreciation for life?

These are common psychological experiences. There is trauma of doubts about exposure. Did it take place? How much? When? Where? Has it stopped? Will it start

again? Are current health problems caused by exposure? Will people get disease in the future? Will children be born with problems? Will the environment be ruined?

Responsible agencies either do not have the answers or will not give them out. Left with incredible sense of uncertainty. We keep asking the same questions; not getting answers. Hard to handle uncertainty that has life and death implications**. Tension between normalcy and crisis within each one of us. This tension also exists in a social forum; living in fragmented society with division of labor; responsible agencies are, of course, going to take position of normalcy, which leaves it to certain citizens to take position of crisis.** Breeds social friction and inability to move forward. Best way to deal is to strip down to the honesty. She is afraid for the health of the children on the river; afraid we did not do our job right. The nuclear weapons business was borne out of fear. We're talking fire, nuclear and hazardous materials and Los Alamos. This is a good start.

RESTORATION OF THE RIO:
A MATTER OF HEART

Deb Hibbard, Community Outreach Director
Rio Grande Restoration
El Prado, NM

¥ From river advocacy organization, a voice for the river. Steve Harris could not attend because he was teaching swift water rescue -- taught it to emergency workers in Los Alamos. Recognize support of rafting community as advocates for the river. Jim Bones, who wrote *Rio Grande: From the Mountains to the Sea*, is doing seed balls to spread hope along the river.

This gathering is of personal significance to her, as spent 10 years trying to stop the nuclear arms race. **Find the two issues, water and nuclear arms race, are very similar.** People feel despairing**,** afraid, disempowered, and don't know what to do. **Important to activate people, transform despair into powerful action.** "The care of rivers is not a question of rivers, but is a question of the human heart." Tanaka Oshosho. **The river is about the heart, it is the great connector, and our lives are connected now in a way that they never have been before.** Find that very hopeful out of this. "We have come so far from wisdom; a wisdom that is the heritage of all people; an old kind of knowing that respects a community of land, animals and other people as equal to ourselves. Where we know the meaning of relationship." Linda Hogan, *Dwellings*.

Today is about relationship; glad to hear about seeking solutions together; we cannot afford polarization. When we find two opposing points of view it is our responsibility to seek a third way, a solution, rather than fighting back and forth. Remember also that we all live downstream, a thought from the early anti-nuclear movement. The people of Las Cruces need to remind us in Northern and Middle NM that they need the water too. Also broadening the connections with brothers and sisters in Colorado, Texas and Mexico. Rio Grande Compact decides how the water gets divided up among those entities with NM. **We've got to cross the boundaries with these issues and seek solutions so that everyone will benefit.** We have a mighty task ahead; population in all four regions growing; water supply is not growing; must find ways to share the resource.

The life of the silvery minnow is not unlike our own lives. The minnow is endangered. The minnow is an indicator species, which simply tells us that the river is in a greatly deteriorated condition. Its range is greatly diminished, was from headwaters to the Gulf; now just in the stretch south of the San Acacia Dam -- an area which is drying. Pits environmentalists against farmers; must seek equitable solutions while still remembering the minnow. **We live in a time where extinction is the story; the nuclear age is about extinction; endangered species are about extinction. We very much need to change that story.**

One big part of community organizing is to hold out a vision, to know what you're against, and what you're for; and invite people to participate in it. We may get caught up in telling people what they ought to do; but now have Listening Project to ask people what concerns, ideas and commitments they want to make to the river. People are not apathetic about the river. They may be ignorant, but they're learning. People in the Middle Rio Grande Valley felt that protection of the river and riparian area were of utmost importance, and pools, golf courses and grass lawns were not. It's not a healthy river. There are water demands on the river, such as damming, loss of sediment, loss of wildlife (including the silvery minnow). **There are innumerable challenges facing the river, the fire compounds these problems, and adds to concerns about water quality. Albuquerque wastewater treatment plant is the largest tributary into the river.**

We have allies everywhere: Bureau of Reclamation, Army Corps of Engineers, Fish and Wildlife Service, who recognize and have regrets for the condition the river is in and the role their agency played. Efforts in the Middle Valley to join together to find solutions to save this precious being, the Rio Grande. River advocates training coming up.

CONTEXT STATEMENTS & CONCERNS:
THE IMPORTANCE OF CITIZEN OVERSIGHT Audience Comments & Questions

¥ Q for Owen Hoffman: Did I understand you to say that we don't know what the levels are because they were too low to be measured?

Owen Hoffman: Difficult to give you a straight answer as I don't have all the information that has been produced. Based on what I have seen and heard in the last few days, the indications are that the radioactivity in the plume was dominated by natural sources, decay products from radon accumulating on leaves and being redistributed into the air. However, just the mechanisms that I know about of the heat of the fire, the vaporization of organic material in the soil, and the standing biomass of trees that would contain strontium-90 and cesium-137 from the site, that would be put off site, even if below the levels of the monitoring system. That material did get transported downwind and people were exposed. Reframe: **If exposures occurred, but they were below levels of instrumental detection, is there still risk?**

¥ Q: At least one of the monitors from LANL is on a web site and shows 30 times background radiation than what reported by LANL. Citizens for Alternatives to Radioactive Dumping (CARD) reported with their instruments that Ojo Sarco was over

double; Dixon and Española, almost double. Independent monitoring. I would trust that more than what LANL tells us.

Owen Hoffman: To clarify, I have heard about these reports showing many times that of normal background. The question is: What is the source of that radioactivity? It is not in dispute that the levels are there, but answers you have heard: Is it from the release of naturally occurring radionuclides?

Robert Alvarez: **From Hanford and Los Alamos, have learned that ambient monitoring systems are designed to pick up releases from routine operations and distinct point sources; not from events such as these fires.** Surprised to learn, having worked with DOE, my understanding that DOE did not deploy aircraft to collect samples from the smoke and to do remote sensing. That is a pro-forma emergency response measure that HAS NOT BEEN DONE. Would take 10-20 times more instruments to deal with these unexpected incidents, very costly solution to the current problem, which has a one in ten probability. Problem at issue, and important, is given those circumstances, we have to be very careful about knowing what we don't know. What bothers me about public pronouncements about risks: What is the scientific basis? How do we know? **Quantifying what you don't know is extremely important.** We have to work with whatever material we have available to us.

¥ Q for Owen Hoffman: Does plutonium change chemical composition when it is burned? If it does, does it become non-radioactive?

Owen Hoffman: No, changing the chemical composition of plutonium does not change its radioactive quantities. The half-life of plutonium is measured in ice ages, and it can change chemical form. But plutonium oxide, which is out there, is already an ash, the plutonium on the top, so re-burning it won't change its form -- only if it is subjected to highly acidic conditions, then it may become a more organic complexed material rather than an oxide ash. It would then have different solubilities and opportunities for uptake into systems. Plutonium oxide is fairly inert. Most dangerous if breathed.

¥ Q: May 11th, saw a Channel 7 television clip of LANL representative announcing that fire just hit Technical Area 16 and had burned old plutonium and there were particulates being sent into the air. Back to back was Dr. Barry Ramo who said anyone within a 50-mile radius of Los Alamos with any kind of respiratory problems should get out of town ASAP. I left Santa Fe so not to breathe it. The clip of the scientist speaking is no longer available from Channel 7.

¥ Q for Jim Ruttenber: What kind of data needs to be collected right now to conduct the research?

Jim Ruttenber: First, it is necessary to establish appropriate planning to identify potential sources of contamination and pathways by which it may have migrated off site. The set up sampling programs for sediments, soils and air monitoring; most important is planning; independent scientific oversight and citizen involvement in design and sampling.

¥ Q: About risk management, probability of coming down with disease. Need to have exposure surveillance for the people who have been involved. How can we do

preventative action to keep people from coming down with disease, rather than treat after the fact?

Jim Ruttenber: Tough issue, as not clear as to level of exposure during the fire. If you don't know, it's hard to think about doing health studies or to implement a program of bio-monitoring or any kind of monitoring.

¥ Q: How about have program to help people strengthen their immune systems, rather than dealing with immune systems that have broken down?

Jim Ruttenber: This issue of immune system effects is controversial. If you don't know what the agents are, whether radionuclides, or certain chemicals. If you do not know the specific contaminants, then it is hard to make a blanket recommendation.

Q: As far as diet recommendations; we have various diets people could follow. Seems we could do this according to people's belief systems.

Jim Ruttenber: Certainly a strong advocate for strengthening immune systems for whatever reason. Important recommendations, but whether they will actually intervene in a process caused by the fire is not known. Would be tough to get public health community involved in this.

Owen Hoffman: Ask smokers to quit. That could improve baseline health risk of this country. Background rates interact with radiation exposure even at small levels -- on the lung, additional insult to lung. Also, do everything else you can do to reduce risk of disease all around. Don't need public health organization to tell me to reduce background risk of disease.

¥ Q: One of the problems on the river with the aftermath is that LANL and government have minimized (what they have told us about) risk over 40 years; only admit seriously wrong after everyone has known it for 20 years. Don't wait for a congressional hearing or a Government Accounting Office (GAO) report to do this. **The fire is over, what was in the plume is on the ground.** Now worry about exposure and risk from waste products and runoff. **The canyons hold stuff covered up like a wound**. Is there a measuring monitoring system to measure those things in the water now? **Ask LANL to share information in a timely way.**

Robert Alvarez: The people who really bore the brunt of the risk were the firefighters. (Applause.) Increased frequency of wildfires in the US. Firefighters and emergency responders are subjected to a witch's brew of hazardous stuff. In California, firefighters who just polish fire engines are compensated well. We need to start thinking about the people who are put at immediate danger and risk and make sure that we learn from this experience. **These wildfire fighters need to be compensated, treated as heroes; should have been treated as de facto radiation workers.**

We have an important sea change at national level. Bill Richardson, DOE Secretary, has said that we have made our workers sick from exposures in the workplace across the country, including LANL, and it's time to come to terms with providing justice for these workers. US government is recognizing it has killed people in the workplace. Need to

keep this in mind constantly when dealing with LANL, which is the most extreme example of the culture that has surrounded DOE for years, that of secrecy, isolation and privilege. This fire is a wakeup call. LANL has been traumatized enough to realize that they can't do this alone. If they think they can, they are in for some very tragic consequences.

Toby Herzlich: How do we build that partnership?

Deb Hibbard: I understand the concern regarding releases from LANL, but want to remind us that this is all a part of a bigger issue of forest and river management. Emissions from Molycorp, the cars we drive; all are of deep concern to biologists. High fecal coliform rates out of Rio Rancho. **There are lots of other deadly poisons in our ecosystem, and issues ecosystem-wide that we need to keep out in forefront. Santa Fe Watershed and its vulnerability should be of major concern, but see the bigger picture as well.**

¥ Sam Hitt: Would like to open dialogue on important subject regarding role of logging and reducing risk of fire. Some politicians will use this to dramatically increase the amount of logging in national forests. Senator Domenici is proposing bill to increase funding for logging in national forests to $240 million. These forests are adapted to and shaped by fire. Walked through burned areas from Cerro Grande, then through the area of the La Mesa fire site, 1977. That area looks beautiful today. **Fire is an important tool.**

¥ Q: Main concern is the original owners of the land, the Pueblos. Wondered about compensation to the Pueblos, fire or rent, compensation related to the fire and areas affected.

Toby Herzlich: We're talking about the river and the watershed.

José Lucero: The dialogue will address all issues.

¥ Q: Working with Jemez & Sangre Regional Water Planning Council. Need to know how can include aftermath info and effects of water quality on the study, and how it will affect the proposed Raney collector at San Ildefonso, which may pipe water into Santa Fe. How it will affect Cochiti Lake, Cochiti Pueblo, and the Santa Fe River? Agriculture and water quality will be affected. **How will this affect development within Santa Fe County?** Assumptions made without data. US Geological Survey (USGS) was independent monitor of LANL. Need independent monitoring. Native people in Chihuahua, Mexico has water issues.

Toby Herzlich: We captured your question for LANL representatives this afternoon.

¥ Q to the scientists: Shortly after the fire, LANL said 10 times background for alpha, and some other numbers for beta, and no numbers for gamma. Where did these figures come from? What do they mean? How much gamma released? Is it possible to monitor that?

Owen Hoffman: Of course it's possible to measure gamma radiation. There should be more detailed info presented this afternoon. The alpha activity, interpretation currently is that the bulk of it is of natural origin.

Jim Ruttenber: They don't know and it will take a long time to pull together the existing data and this is a lead in to **what will we do when the floods start? Will we be in this situation of not having monitoring at the time? This shows that the goal of improving exposure surveillance for these special events is to have credible data more quickly.**

Q: What do these figures about releases mean?

Jim Ruttenber: Probably someone forgot the gamma. It was packaged for the media to keep people from going off the wall, but no one knows exactly. It's probably not a big problem.

Q: There is a book called *Living in the Radioactive Age*. It teaches you what you can do to take care of yourself. Kelp for instance will help keep you from taking up radioactive iodine.

Keith Easthouse: Concern I hear is, "Did I breathe anything?" It strikes me that one obvious thing to do to get a handle on it is to study the firefighters who were closest to the smoke. DOE 1997 study identified two likely ways firefighters would be exposed. Study postulated that smoke would travel down the canyons close to the ground. So if firefighters were down canyon from a contaminated area, they would be exposed. After the fire, the danger is radioactive dust, in resuspension and dust tainted with beryllium, a real lung cancer danger. DOE study looked at EF site, and postulated that if an individual inhaled re-suspended radioactive dust, would receive twice the normal yearly dose in a single working day. The firefighters have been breathing this dust for a couple of months now. **So, why not study the firefighters? Wouldn't that give us some idea of what the larger public was exposed to?**

Jim Ruttenber: Exposure to firefighters will be different than those people downwind; worst case would determine if exposed or not. Would be possible now to do some lung counting on the firefighters. Interpreting these data is tough especially if concentrations and activities are low. It can be done, but it's uncertain whether or not it would benefit people in Santa Fe. Probably a prudent thing to do. **Identify firefighters that had highest exposures. Then decide after that about possible studies.** Won't find health effects in firefighters, but can find levels of radionuclides. Inferring public exposure from this is tough and not possible.

José Lucero: Add that media people were there on the front line of the fire, and our congressional people, those may be our detectors.

¥ Q: I haven't heard anything about why do we continue with LANL? (Applause.) Why don't we dismantle it? It has no use for us any more. It did at one time, when we were at war, but now it doesn't. Why don't we just get rid of it? We talk like a bunch of victims, reminds me of what we were doing in the anti-war movement. I can't even stand to go up to Los Alamos. Why don't we dismantle it and make a memorial park out of it?

Toby Herzlich: Remind us all that today is about developing partnership. So that the need to take care of the Rio Grande be taken care of by the best scientific minds.

Robert Alvarez: If we close it down Monday, we still have a profound legacy to deal with, and that is not why we're here. What we are dealing with is what everyone considers to be an imminent danger. Whether you agree with the existence of LANL is not the issue here. The issue is agreeing to disagree and dealing with the issue at hand.

Deb Hibbard: There's a level of denial among people who live in Los Alamos and only through the partnership can we get past that denial and deal with the issues.

¥ Cynthia Jurs, Buddhist teacher: Just back from conference with Dalai Lama on bringing Buddhism to West. Talked about what happened at Los Alamos and concern for radioactive pollution in the world. Have petition here today:

> We, the undersigned, citizens of northern New Mexico, request the US DOE, LANL and the University of California Regents provide full disclosure about the extent and potential effects of nuclear radiation and toxic leaks resulting from the recent fires at Los Alamos. The land around the Los Alamos National Laboratory is ancient sacred land to Native Peoples. It is marked as the birthplace of the atomic bomb and continues as the main site of nuclear research and production for the military. By virtue of the weapons created there, the land is vested with a significance that makes it our sacred care. The radiation and toxicity that may now be spreading from the laboratory and its environs imperils all beings and will affect countless generations.

Also has earth treasure vase, from Tibetan tradition, filled with prayers and offerings to heal the Earth. Leave this beneath the altar and if anyone wants to gently hold it and put your prayers into it for reconciliation and healing and remediation and balance for the Earth, it will be buried up there in the near future.

¥ Toby Herzlich: Thank you panelists and audience for your patience and listening. If you have questions in writing, please bring them up front.

Lunch Break

AUDIENCE QUESTION REVIEW Toby Herzlich

¥ Reminds the audience that we are here to talk about the river and the watershed. Focus on the river. This meeting was called due to pending problems due to the rains. The problems are just beginning to be encountered. LANL was asked to send their river people, not air people. Hope to deepen the conversation with dialogue among presenters.

> Do we know the levels of contaminants released into the water and earth?
> For levels below detection, are we still at risk?
> What data has to be collected to do related exposure sampling?
> What kind of monitoring is currently in place for the aftermath?
> Raney collector at San Ildefonso Pueblo?
> Cochiti Pueblo, agriculture and water?

What effect on future Santa Fe development?

AUDIENCE QUESTONS:

- ¥ 7-8 years ago I did citizen monitoring with radiometers; we assumed that contamination was being spread by the rains so we tested gullies and alluvial dirt -- it showed twice background radiation. Has LANL tested in the past? What is the level of runoff from LANL to the Rio Grande? Will this testing continue?

- ¥ Jon Asher: Is it safe to recreate in the river from the runoff levels that are coming now and if not, when will the health hazard dissipate enough to recreate in the river?

- ¥ With particulate matter posing the most prevalent danger, heavy rains are consolidating particulate matter in watershed deltas, there is a potential for phytoremediation through constructive wetlands and other sorts of natural filters using penicillin fungus which is used to remediate uranium composites. Are those kinds of filters planned for the future?

- ¥ As you said there was no monitoring system in place to deal with the fire effects, I know a person from Sandia Labs who monitors radiation exposures and releases all over the world, and would have been glad to come up. He was not called in to LANL. Who will you bring in to monitor? Why, if not, weren't such local experts considered? Can monitoring information be posted on the Web, the news and television to inform and reassure the public?

- ¥ Is this catastrophe being considered as a Superfund site in the near future?

<u>DEFINING THE INTERVENTIONS</u>: 1:30 p.m. to 6 p.m.

Toby Herzlich:

Introduced panelists: Robert Alvarez, John Themelis, Lee McAtee, Ted Taylor, Ken Mullen, and Steven Reneau.

WHO'S ACCOUNTABLE FOR WHAT? Robert Alvarez, Director
Nuclear Policy Project, Washington, DC

- ¥ I was asked to talk about the DOE and accountability issues in the current circumstance. I have struggled to explain this to myself, much less to you folks. What is the DOE? -- the largest government-owned industrial and research enterprise in the US, with 2.4 million acres of land, 25,000 fixed assets, 110,000 employees; responsible for the largest radioactive inventory in the world. If compared to a private company it would be number 20 to 30 on the Fortune 500. If DOE were privately held, it would be filing for bankruptcy. Two-thirds of its budget is taken from defense accounts for the purpose of maintaining the existing nuclear arsenal, dismantling weapons that are now objectives under arms control agreements, and attending to environmental safety and health legacies of the nuclear arms race. As a result of the end of the nuclear arms race's end, most facilities

which were built up in the 50's for the Cold War have closed down, because they were unnecessary and were old and deteriorating. For many years this work was exempt from environmental regulations, given lots of latitude. Now as a result of the problem of cost maximization, there has been a wholesale closure of most of the nuclear production program, with a major, large, unfunded mess that is being left behind. **Now we face paying the "balloon mortgage payment for the nuclear arms race." Most of this mess is not at LANL, but other sites.**

The next layer of DOE is the management structure, which is entering "receivership" with the dwindling mission of maintaining national security and coming to terms with the legacy of the nuclear arms race. This management structure is losing lots of its coherency due to these changes. This has been a feudal system based on a flow sheet for nuclear production, everybody had a role and a purpose, but that flow sheet collapsed. There is nothing to replace it to tie the sites together other than cleaning up the mess. This management structure hasn't been able to adapt to the changed circumstances. There is more decentralization in the administration and less information going up the ladder on what is happening, and less information coming down. But some major elements haven't changed since the Cold War: the use of contractors who do 90% of the work; the "DOE order system" is like the Bible, often cited, subject to wide interpretation and hardly ever read. It doesn't track the real world. The contractors are self-regulating under a system that is no longer operative with decreased functionality. Thus there is disfunctionality and accountability suffers. An old saying around DOE is, "No good deed goes unpunished."

This system is made more complicated by Congress' response to the recent loss of "secure" information. The National Nuclear Security Agency (NNSA) created within DOE creates redundancy and a level of management where everything is being duplicated. There is now a *de facto* banana republic inside DOE that is concerned with national security matters. The nuclear wildfires are among the more serious nuclear emergencies to happen in the US. This should be a major wake-up call for the DOE.

Large amounts of unstable nuclear materials are stored in deteriorating facilities, which is unacceptable. Oak Ridge is much worse than LANL. There are waste sites here that are largely forgotten about because no one thought that there would be a fire danger, but these are top priority now. No one thought about these things, which is in itself untenable. We need to think about how DOE will configure priorities.

The comprehensive DOE mission statement for 2000 only said that the mission is to protect national security. It should be to protect the Rio Grande. **Everyone in the DOE, especially those working in the environment, should ask, "What am I doing today to protect this river?"**

Finally, the regulatory regime -- a relation between State of NM, DOE, Environmental Protection Agency (EPA); the primary regulatory driver is the Resource Conservation and Recovery Act (RCRA), which NM has under delegated authority from EPA. **The Los Alamos site was not on the Superfund list. Now is the time for that. It is a major environmental problem.**

DEPARTMENT OF ENERGY & LOS ALAMOS NATIONAL LABORATORY

DOE'S COMMITMENT TO
THE ENVIRONMENT

John Themelis, B.S.
Acting Deputy Assistant Manger for the
Office of Environmental Operations & Services
DOE Albuquerque Operations Office

¥ DOE and LANL appreciate this opportunity to enhance and broaden the dialogue. DOE Secretary Bill Richardson could not attend, but he sent a letter. He then read the letter to those present:

July 8, 2000

Dear Conference Participants:

I would like to thank Anna Hansen and the Concerned Citizens for Nuclear Safety for sponsoring this conference. Unfortunately, prior commitments prevent my attendance, but I want to assure the citizens of New Mexico that I am deeply concerned about the post fire flooding and erosion.

I have made addressing the issues of erosion and flooding in the aftermath of the Cerro Grande fire a top priority of the Department of Energy. The safety of human life and the environment are paramount, and all actions being taken by DOE and the Laboratory follow from that assumption. We are committed to working together and to an open public process. We welcome your input.

I have been heartened to see the communities of Northern New Mexico work together to help victims of the fire and each other. We've come out of the fire, I believe, as even better friends and neighbors. I hope that in this same spirit we can work together to address these critical environmental issues.

As you may know, the Administration provided a comprehensive fire recovery package to Congress requesting emergency appropriations for fire recovery efforts. Last week, Congress approved, and this week the President signed into law, $661 million which will help in the recovery from the fire damage and protect against further damage due to flooding and erosion.

Major recovery and protection efforts are underway at the Laboratory. I would like to thank the New Mexico Environment Department, the County of Los Alamos, the Accord Pueblos, the U.S. Forest Service, the Environmental Protection Agency, the U.S. Army Corps of Engineers, the U.S. Geological Survey and others, who are presently working with us to counter this threat. I commend all of you on the spirit of cooperation and on your hard work.

With continued cooperation and participation, we can work to ensure the safety of the people of New Mexico and its environment.

Sincerely,

Bill Richardson

The protection of human health and the environment has been of foremost concern, both during the fire and during the rehabilitation efforts. The Secretary and the Deputy have both visited LANL, have been very active, especially the Deputy, in monitoring and oversight of the activities that are going on, in response to the needs of the public and to assure protection, as well as to ensure that information is available. We have worked effectively with the State and Federal agencies and the Pueblos. The Corps of Engineers is involved in rehabilitation, which the Secretary ensured. To go to Congress with appropriate information to get support. We have activated a strong public participation program. Daily updates have been issued. If you want information, get on our mailing list. Weekly public meetings are held every Friday at 10:00 a.m. and we are looking at alternating the schedule with Santa Fe to broaden participation.

LANL'S ENVIRONMENTAL PROTECTION OBJECTIVES

Lee McAtee, Deputy Division Director
LANL Environment, Safety and Health

¥ We are not amorphous representatives of agencies. We are all humans here, and have more in common than our differences. I had heard of Bob Alvarez as an outspoken nuclear critic for years and it was a pleasure to have the opportunity to talk with him at lunch and to find that we agreed on many things. Past meetings with CCNS have been adversarial -- no listening or learning.

As an individual I care very much about the environment. We all want a clean environment free from contamination. We all want love and respect. I detest living in a world with nuclear weapons. I want world peace for my family and the generations to come**. I know many of you don't trust LANL or DOE, for valid reasons. It has been a closed society for years. It is difficult to open up and let the public in to influence decisions. This is vitally important for the future of LANL and for the welfare of our society -- you have every right to be part of the decisions that potentially impact you -- ethically, morally, you have that right.** Similarly, LANL doesn't trust activist groups, and believes that they misrepresent the facts on purpose. We don't communicate or share objectives. The objectives of LANL are changing, a generational thing, a gradual process, as younger, less angered people (replace the "old guard"). **One of our objectives now is openness, to open the Lab to independent monitoring and public input.** We don't know how to do it, but we want to learn. John Browne, the Director of LANL, feels this way too.

During the fire we invited anyone who wanted to come in to monitor. Now even more so we need to do this. I strongly support citizen input. **Our other objective is regulatory compliance. I strongly believe that the regulatory requirements represent the <u>minimum</u> we should be doing, we need to go beyond that.** Regulations and technical research are important, but I also appreciate and understand the need for social considerations, and looking at right and wrong. I regret that there is any contamination anywhere, much less at LANL. As an individual I am doing all I can toward that end.

We have established an aggressive effort to do all we can to manage this tragedy of the Cerro Grande fire, especially the flood danger. Five sub-teams are in place for this. We know we are tied to everyone both upstream and downstream. **Our priorities are the protection of human life, to prevent contamination, and to protect infrastructure and facilities at LANL.** Many actions are being taken, working with the Forest Service, the County and Pueblos to treat slopes to reduce runoff. Everything from seeding, thatching, erosion barriers, raking, and contra-raking over tens of thousands of acres. We're also trying to protect things in the case of flooding. We've gone through every canyon and prioritized the issues, the vulnerabilities; we've looked at potential contamination, runoff and threats to human safety. We've taken every reasonable action that we can. We are not doing this alone. With the Army Corps of Engineers and US Geological Survey and outside experts we will do all that we can, as long as we can. We want to learn how to work with the public, CCNS, regulators etc. to bring credibility and independence to the effort.

WATERSHEDS & WILDFIRES — Ken Mullen, Ph.D., Analytic Chemistry
LANL Watershed Management Program Leader

¥ The river is very important to me. Principle job is to protect the river. Through the Environmental Surveillance Program at LANL, I look at the river every day. Important to understand LANL's impacts on the river and environment. In 1999, LANL put out Watershed Management Plan, which only looked at LANL. Through the Pajarito Plateau Watershed Partnership we involved the neighbors along the entire watershed. Shared elements, issues, decisions, data/criteria/general actions. Individual elements: watershed programs; data collection; specific actions. Have heard a lot today about the need to disseminate information. **One of the focuses of the Watershed Management Plan and Pajarito Plateau Watershed Partnership is to publish information for everyone. All environmental surveillance data from Watershed Management Program released yearly to public. Will be on web, searchable, and can ask about anything we have found in what concentrations.**

He then put a number of transparencies outlining various things on the screen. Watershed Management Coordination; involved in Burned Area Emergency Rehabilitation (BAER) team; assess damage and do what can to minimize damage from the fire. BAER/Multi-Agency Coordinating (MAC) Group team made up of US Forest Service, National Park Service, State of NM, Santa Clara and San Ildefonso Pueblos, DOE, University of California. Will publish all environmental data. Fire has emphasized importance of watershed downstream. Hydrologic effects of fire, Frijoles and Capulin Canyons frequency and magnitude of storm flow increased after the La Mesa and Dome Fires.

Emergency watershed treatments include hill slope treatments, channel treatments. Contour raking, heavy duty raking, which breaks up the hydrophobic layer, which develops because of high intensity and high heat. Vaporizes sap in tree and drives it into soil. Creates waxy layer that water runs off. This raking allows water to infiltrate. Had tremendous community volunteer effort, to rake, seed and mulch lands above LANL. Contour felling: fell trees perpendicular to slopes to slow water down. Log erosion barriers also used. These are staked into ground with channel above it cut to further

slow down water movement. Rock structures in drainages to slow down the water. Also, seeding, straw mulching and road system suppression rehabilitation, culvert replacement, stand pipes, hardening road fill. 750,000 lbs. of seed came into Los Alamos in rehab effort. Applied 20,000 acres by air. Straw mulching and straw wattles to slow flows. Lot of areas are remote, used helicopter. Another effect of the fire is cutting fire breaks. Most recently, aggressive hydro mulching effort, on the slopes steeper than 60 degrees, aerial hydromulching was necessary for safety and to apply seed, straw and fertilizer and water.

Monitoring: Locations of gauging stations at LANL, which include measurement of the depth of the runoff and captures the water for analyzing. 63 runoff stations; measure depth of water in real time. Upgrading 10 of those above and below potential drainages as flows will be greater. Some were washed out by high flows. Another question to address: Is the river safe? I believe the river is safe. Avid kayaker. Go there all the time.

Who do we call in from the outside to help? Flood risk assessment team including members of NM Department of Health, University of NM, folks for risk assessment, to get independent analysis of data collected. US Geological Survey (USGS) to evaluate impact of sediments washing off LANL property. USGS installed a runoff station just below Water Canyon to collect data on runoff after precipitation events.

DOE PROTECTIVE ACTIONS
FOR THE ENVIRONMENT

Ted Taylor, Ph.D., Economics
Environmental Restoration Project Manager
DOE Los Alamos Area Office

¥ **Environmental Restoration Project to evaluate and clean up 2,000 potentially contaminated sites at LANL.** On May 11 when still evacuated and LANL closed, we had already started. Trying to contain contamination at the sites and to the extent that we can't do so, we want to remove it. Two techniques are called, "Best Management Practices" and "Accelerated Remediation." **Our objectives to protect safety, health and environment from potential releases of contaminants due to fire**. Develop administrative procedures; in cooperation with NMED and used the procedures. Looked at contaminants at sites, slopes, and vegetative cover to determine what sites would require the best management practices (BMP). Had already done this for 200 sites before the fire started. 626 sites to look at, think it will be done by July 15. **Sites in fire burn area: 626; sites affected: 308; sites requiring BMP: 91 that require corrective action.**

He showed pictures of check dams, contour tree felling; jute mats; reseed mulch, run-on diversion; generate dissipation; sediment retention**. Showed picture of smoldering site -- Material Disposal Area R (MDA R), used in 1940s.** What caught on fire were tree stumps and logs and railroad ties put there 1945-50. Removed about 1,200 cubic yards of material, raked and watered and got it to stop smoldering. Showed picture of run-on diversion trench to make water go around the site instead of across it. Second technique is slope stabilization. Slope graded, contoured and straw wattles placed to slow erosion. Third technique is to contain the water. Soil and other debris removed, piled up waste

and built berm around with clean soil, straw wattles around it. This has worked although they were prevented from entering the site for two weeks.

At **Technical Area 46 (TA-46)** constructed rock-check dams. TA 46 was heavily burned, there's no soil, only ash. Also, hydromulching at TA-46.

At **outfall at TA-16,** installed jute mats, straw bales, straw wattles. First objectives were to remove soil and sediment; second, remove hazardous material; third, decontaminate and decommission structures to be impacted by floods. Objective is to protect safety, health and environment and minimize off-site movement of contaminants.

Showed examples soil and sediment removal in **Los Alamos Canyon,** removed 700 cubic yards and taken to TA-54; second, shrapnel removal at R44 site; demolition of structures in Los Alamos Canyon. 10 structures will be removed; most of this has been done. Sampling was done after removal and showed little contamination. Showed more pictures of sediment removal.

TA-2 tank removal, 10 tanks will be removed.

This is what LANL has done to support overall recovery and rehabilitation efforts.

CONTAMINANTS, SEDIMENTS, FLOODS. Steve Reneau, Ph.D., Geology
LANL Team Leader for Sediment Characterization
Canyon Focus Area
Environmental Restoration Project

¥ Interact closely with NM Environment Department (NMED). **Goals are the same as yours, to understand exactly what the situation is for contamination in the canyons. Does it pose a risk? What's going to happen to it? What to do about it? What danger?**

Geomorphology is his field, study of earth's surface. Always wanted to apply this to real environmental problems, and here we have a real problem. Do we have knowledge of the contamination in the canyons? In some canyons, yes, but in not others. Started work in 1995 in Los Alamos and Pueblo Canyons. First because of known radionuclide contaminants; access to public; offsite transport. Reported in 1998 to NMED; San Ildefonso Pueblo; freely available to public. Mortandad, Pajarito, Canyon de Valle; not finished yet. Other contaminated canyons, such as Mortandad, which were at first lowest priorities, now are to become high priorities because watershed impacted by floods. Just finished this week with baseline characterization of canyons impacted by the fire. Do we really have a problem with contaminant transport in Pajarito and Water Canyons? Want to use example of scale and magnitude. **Pueblo Canyon runs right behind Los Alamos; most severely burned watersheds, are expecting large increase of flooding. Largest inventory of plutonium on LANL land.** Notes that "Plutonium and the Rio Grande" map by Will Graf is a good map.

Have known about contamination for many, many years. Most of the plutonium there was released 1945-1951. Released in liquid wastewater from treatment plants in the

laboratories; tends to bind to sediment particles which are redistributed all the length of the canyon, all the way to the Rio at San Ildefonso. We see a decrease in concentration as we go downstream towards the Rio, which is consistent with input of clean sediment from different sources. Also in terms of earth history, reconstructing flood history, see concentrations of contaminants leaving LANL were highest in those early years. Concentrations going down over time. In Pueblo Canyon there are large levels of sediment with levels of plutonium. 300,000 cubic meters of sediment, size of a football field half mile high.

In terms of health risk, there are levels above background. What levels are significant? **Definitely have an environmental problem; but is plutonium a health risk?** We have standard risk models. What kind of dose would someone using that canyon get from the plutonium in the canyon? If more than 15 mgs.; in Pueblo Canyon these are less than 0.1; based on EPA standards, there is no need to clean up. For many members of the public, that is not acceptable. The regulatory requirements and cleanup standards are the minimum we have to pay attention to, but as environmental stewards we will do more if we can.

The options in Pueblo Canyon and other canyons:

1. Do nothing and let nature take its course and allow continued low-level offsite transport that won't exceed EPA standards.
2. Dig everything up and where would we put it? Huge opposition to dumps. Dug up when had info that it would do some good downstream.
3. Try to stop everything from leaving LANL. To do that, we need a large dam. Contaminants are in fine sediment particles. Trap water and let them settle out. Can't dam just any stream, cites NM water rights.
4. Do what we can to slow movement of sediment off the site, including sediment filters and retention barriers. That seems to be the most reasonable option. Trying to stop movement off the site.
5. Also, monitoring to see what effect of geologic transport. **The natural geologic processes is to dilute contaminated soil with clean soil. This has been hugely accelerated because of the fire, diluting what is on LANL land, decreasing concentrations downstream. Is this acceptable or not? Not just a LANL issue; should be a societal issue. We have inherited these issues as a society. Good to be here with CCNS to do what we can and get a public dialogue so as a society we can decide what we need to do as a culture.**

Break

NEW MEXICO ENVIRONMENT DEPARTMENT & STATE ENGINEER

CERRO GRANDE FIRE SAMPLING — Ralph Ford-Schmid, B.S., Biology
Department of Energy Oversight Bureau
New Mexico Environment Department

¥ Going to address samples that New Mexico Environment Department (NMED) DOE Oversight Bureau (OB) has taken in response to fire, and plans for sampling in the future.

First, what's in the ash and what will be running off the hillsides with the rains? We put together some plans and started sampling ash. Most of our sampling, due to limited access to LANL, was west on Forest Service lands. Wanted to know background ash conditions. Collected 10 samples off LANL property and 8 ash and ash-soil mixtures, and scraped burnt bark as LANL was doing.

In response to some organic farmers' concerns, met with a group of them two weeks ago and since, have sampled 8 different organic, commercial and hobby gardens in the plume, and will do 4 more next week.

Just 2 weeks prior to the fire, collected surface water quality data and flows from a perennial reach just outside LANL boundary, which reappears in LANL as springs. After fire, but before any floods, did the same tests and also collected insects. Went back in there last week after floods and did it again. Got inside LANL and sampled the springs and perennial reaches we have historically sampled, surface water quality and springs, also insects.

After the first couple rains, we didn't have large enough flows to discharge off LANL property, but we did see this ooze, black deposits in the canyons, so sampled Pueblo, Los Alamos and Pajarito Canyons. All of this data is pending, laboratories are swamped, but it is coming. How soon? Within 3 weeks to a month.

Also went out with the LANL's Environmental Restoration Project to potential release sites (PRSs) that required Best Management Practices (BMP). Will return to these BMP sites, the 91 Ted Taylor identified. Will set out single-stage stormwater samplers to collect about a quart of water in drainages below to ensure that they are holding the contaminants. Will sample sediments in the sites, upstream and below.

Getting permission from Cochiti Pueblo. Asking USGS to get samples from gauge station at Rio Grande. Composite sample from all the way across the channel and all the way down the entire river, to get an accurate picture. Also will be collecting newly deposited bed sediments, sand bars etc. Will discuss on Wednesday what they can collect for us and how we can coordinate.

Would like to say that we would be out there sampling if it rained tomorrow. My truck is loaded and ready to go. But we need to go through specific LANL site training on collecting in these dangerous canyons. Will be on two LANL storm sampling teams, 5 of my people will participate with those teams. LANL has a network of 61 gauge and stormwater monitoring stations, and we have 5 samplers that we will be putting with these. Sampling will be at LANL boundary, as too dangerous to be in canyons during the conditions, will have equipment in the canyons at those times and we will be around the edges. In the next 3 weeks we will be getting the equipment to set up independent teams, radio equipment and training to operate on our own.

Ken Mullen mentioned the Flood Risk Assessment Team. I met with that team and had many of the questions brought up earlier on designing the proper sampling plans. These included: Where to sample? What frequency? What types of samples to be collected? Should you sample during the height of the storm, or all along the entire event? Time

weighted or flow weighted? Will be working with the risk assessors to formulate the proper questions and determine what analytical needs we need to fill. As NMED DOE OB, we need to be collecting the samples. Basic job is to validate LANL's data so that public will have confidence. Split samples, sample same areas, use different laboratories, and if data differs, figure out why. Do independent sampling to fill in data gaps. Will sample where not covered. Don't have capacity to do it all, but will fill in the gaps and to be sure LANL's data is good, quality data.

CONTAMINATION, TRANSPORT & RELATIVE RISK

James Bearzi, M.S., Earth Sciences
Chief, Hazardous Waste Bureau
New Mexico Environment Department

¥ One of the more poignant questions I've heard here is, "What have you done today to protect the river?" For the NMED, it is, "What have you done today to protect 'fill in the blank?'" **We are civil servants, accountable to the taxpayers and we cover a wide range of environmental and environmental health issues. This is just one of the many things that we try to cover**. My time here today would be best used answering questions people have, getting input into directions we should go in. As a result of the fire, interesting things have happened. At 2 a.m. he was at emergency op center, called Los Alamos to talk to someone had never talked to before, Lee McAtee. He said that the thing was: How do we communicate better? That process began at that moment. First 3 things he listed we are constantly trying to overcome, not just as a result of the fire, but statewide.

Want to be sure that whoever is responsible for the pollution is taking the correct action. That's our job as a regulatory commission. We ensure that the right action is taken through technical scientific review to see that it is the right thing. The second thing is communication. Mainly, as far as developing plans to get these things done: How can we better communicate with LANL and DOE to make sure that decisions are made quickly, efficiently and correctly? Third, not only action and plans, these actions and decisions have to be documented in a public record that anyone concerned can get to, now, 10, 20, 100 years from now. We're constantly struggling with all of these. There is plenty of action going. NMED has a hard time keeping up with LANL, and environmentally speaking, they are doing the right things. Communication has greatly improved facilitating quicker decisions. Also positive that they have met concerned people in the community. They are asking the tough questions, which he may not have the answer to, but point them in the right direction.

Some of the other things going on now, both Ken Mullen and Ralph Ford-Schmid spoke to flood assessment teams. This team has been germinating for some time now since mid-May, trying to accomplish: if at some point there is adverse visual impact to Rio Grande, people will ask if it is safe. These include black sludge, fish kill etc. People will be looking to NM Department of Health for answers. We want to make sure that the kind of data being collected now, past, future, will feed those kinds of decisions. Those are the succinct, concise, cogent decisions the public can use and act on. Individuals can make their own decisions. Make sure we're identifying the data needs and filling those

gaps with the right kind of data. Sampling in and of itself isn't enough. Limited resources.

NMED Secretary Maggiore knows that Agreement-In-Principal (AIP) (between DOE and NMED for funding NMED DOE OB) funding is going down and released $400,000 to the Hazardous Waste Bureau to aid in the sampling effort. Will dovetail our plan with the agency's plan and to complement and to use to confirm and to be independent sampling for DOE sampling. All the data in the world won't be useful without some decisions to develop their risk models in all the different scenarios. **Risk is in the eye of the beholder. A molecule of plutonium may be high to some people. Communication is essential to get information to public in digestible form as decisions are being made so that input can be received.**

SURFACE WATER QUALITY
& THE COMMUNITY

James Davis, Ph.D., Biology
Chief, Surface Water Quality Bureau
New Mexico Environment Department

¥ We have statewide responsibility for surface water quality issues, specifically the Los Alamos area, that is larger than just LANL. You've heard much of the work that is occurring there. Surface Water Quality Bureau is involved to support and to interact with the other teams. To broaden perspective, utilize name of presentation: "Surface Water Quality and the Community." Emphasize what you already know; when talking about flooding and erosion issues, these issues can't be addressed solely by government agencies. **There is expertise, knowledge, and experience that agencies can bring, but to effectively address these issues there must be community involvement.** I can invite people into my office to discuss detailed and complex problems and identify solutions, but they will fail once taken outside if they do not involve people whose lives are touched by both the problems and the solutions. A meeting like today is incredibly encouraging, though it occurs in the aftermath of a catastrophe, it is encouraging that people are willing to spend their time, energy and intelligence in grappling with these problems.

Administers a program that CCNS may be interested in: federal grant program specifically targeted towards remediation efforts designed to address water resource pollution concerns, $1.6 million each year; not much in light of $661 million figure heard from the federal government. Do have this grant program we administer open to any group, any citizen's group, any watershed group, has worked with Ken Mullen and Santa Fe Watershed Group. Going to release a request for proposals (RFP) July 15 and will solicit proposals for watershed restoration activities. One criteria to use in evaluating these proposals is for rehabilitation of wildfire burned areas throughout the state. NM has suffered a severe fire season and we will investigate whether or not these proposals address activities towards rehabilitation of burned areas. On website next Saturday: NMED web page to Surface Water Quality Bureau, click on that and go to non-point source section. RFP open to Sept. 15. Then will evaluate proposals and award grant in Dec.-Jan. for work to begin Spring 2001. Innovative high tech and low-tech approaches, community based approaches, partnerships. **Because I firmly believe that the only**

way we can effectively improve health of watershed statewide is through community based actions.

Agenda changed to allow for
COMMUNITY CONCERNS Audience Comments & Questions

¥ Toby Herzlich thanked the audience. Reminded them of the ground rules.

AUDIENCE QUESTIONS:

¥ Kathy, American Holistic Nurses Association: Notice trying hard to find solution; doing it in ways that keeps people's anxiety levels high. Since it is not known what the risks are, would it be possible to be more proactive and say since we don't know what's in the water, perhaps we should close it until we do know. **Those kinds of actions would help people feel less anxious and more able to dialogue.**

¥ Jim Bones: Regarding sediment and its transportation. You said the material is being removed from areas. Where is it being put? How is it being stored? Also, what about the concentration that will end up in Cochiti Lake?

Ted Taylor: Being put in Area G at TA 54 in low-level disposal area, being used as fill.

Jim Bones: So it's being dumped. Is there any kind of liner material, remediation to keep it from being exposed in the future? Anywhere you store it, it will go downhill.

Ted Taylor: No liner, but risk level equivalent of riding airplane for an hour.

Jim Bones: Concentrate in reservoirs?

Steve Reneau: Anything that left the Rio would be deposited in Cochiti Lake. Concentration in environmental terms, is an amount per mass, the concentrations decrease as you move it down through the system. Mix with headwaters, concentration once in Rio will decrease even further. Sediment will be diluted and deposited at very, very low concentrations. Risk models incorporate concentrations of contaminants. Not amounts. What will be taken up in a receptor, fish, vegetables, etc.

Jim Bones: Since these are used in irrigation, will it go on?

Steve Reneau: Plutonium goes to sediment. It will go to sediment.

Robert Alvarez: Not sure plutonium is the referenced contaminant to be worried about. We need to better understand the whole suite of contaminants that may leave the site. May not be radionuclides. **Issue is to have a good understanding of what are those hazardous materials which could enter the river and be transported. Also the possibility of reconcentration in sediment as river flows. Rivers are very complicated and models are simplistic, and nature can fool you, in terms of where sediment will build up.** Need to understand, not just what sediment is concentrated in

Cochiti Dam; what the isotope ratio is; and whether it came from LANL. Rather to do a full assessment, core drilling, profiles of the sediments to tell you what are the contaminants as a whole that are building up in this body of water.

Toby Herzlich: **So consortium of citizens should be looking at monitoring of reservoirs.**

¥ Peggy Prince, Peace Action NM: Tremendous respect for Mr. Alvarez, but disagree with your vision of the future of LANL and that DOE is building down weapons and closing facilities. Rocky Flats was closed due to contamination, not redundancy. Stockpile Stewardship for 2020 calls for more weapons. The 2000 plan calls for more weapons and funding. Told Ted Taylor same name worked on hydrogen bomb and now is an abolitionist. Asked Ted Taylor when Best Management Plans will be ready for the increased runoff that you're expecting?

Ted Taylor: Installed July 15 and will be inspected after every rain event. Those will remain in place until site cleaned up or they are determined not to be needed.

Peggy Prince: Are you ramping up new sites as you see increased runoff? Are you putting wattles in new places? How are you dealing with the increase?

Ted Taylor: Do have BMPs in place; had others in place for the last 2-3 years. Will inspect them after every rain event.

John Themelis: Certain sites identified as vulnerable; Ted Taylor says those will get BMPs. Not a factor of the increased runoff.

¥ Peggy Prince: James Bearzi, appreciate your time and the effort of the Hazardous Waste Bureau of NMED to address community concerns, but would like to know, because we believe NMED DOE OB needs to continue to be funded and independent in its oversight. How can we be sure in October, when refunding time comes up, that it continues? Who do we contact?

James Bearzi: Oversight Bureau funded by DOE through Agreement-In-Principle (AIP). Maybe John Themelis can speak to that, funding from Congress, not State funding. Additional funding from NMED Secretary Maggiore is for independent sampling by NMED. Money from penalties assessed from polluters under NM Hazardous Waste Act. There are other ways and emergency fund is one.

¥ Deb Hibbard: Ask Robert Alvarez about disconnect between his view of Los Alamos as Superfund site and official view of conditions there.

Robert Alvarez: Decision to keep LANL and Sandia National Laboratory off Superfund sites was politically made during Reagan administration; Superfund program would be an obstacle to meeting national security goals. Explains Superfund program as designed to cleanup of legacy contamination, a long term cleanup and disposition of materials. Enacted in late 1970's, in response to Love Canal, and other waste dump sites. DOE brought into program in mid to late 1980's. Different from Resource Conservation and Recovery Act (RCRA). Superfund is administered entirely by Environmental Protection

Agency (EPA), not states. It imposes a much different and more formal discipline process over the site where they now have to come to terms with cleaning up the site, preparing the plans, characterizing the site and their waste, stabilizing the site, etc. All the other DOE sites are on the list, and it's not because LANL's contamination is benign, but because of national security, a situation that nobody wants to change.

Ted Taylor: LANL was evaluated by EPA under Superfund ranking; of required score of 28, we scored 17. Things have changed in the criteria that increased the weighting for proximity to groundwater. **EPA could do another evaluation of LANL and someone could write to the regional administrator in Dallas.**

Robert Alvarez: **By virtue of the fundamentally changed circumstances due to the fire, and the accessibility of contaminants to the river, EPA should come back and reevaluate.** Make no mistake; EPA answers to higher authorities.

James Bearzi: There are pluses and minuses for any site going to Superfund. State Hazardous Waste managers nationwide have horror stories about the program. They are jealous of NM for having its own authority. Would be glad to share NMED's feelings about Superfund.

¥ Deb Hibbard: Would like to add to that list for consideration; also, the potential economic conversion vision for LANL. Once you get entrenched in one activity, hard to shift; other problems facing the nation that could be addressed.

¥ Ralph Ford-Schmid: Read Q: **Already have 10 times the legal level of strontium-90 under Mortandad Canyon, which are only measured once or twice a year. Will you measure these subterranean pools more often?**

I think this is an excellent idea and should be raised quarterly; I will make this recommendation to our team and LANL's Environmental Restoration crew.

¥ Alice Roos, Sanctuary Foundation: Just finished 3-year pilot project to help people overcome fear about radiation so that they can start monitoring and understanding. The only thing you want to isolate and contain is the nuclear materials. The information, values, thoughts, etc. need to be opened up to the public. Look at that projection as a fire and let yourself begin to burn inside. Ask Ralph Ford-Schmid as he is backed up in samples; Tennessee physicists said we can do the samples ASAP. They can get there overnight.

Ralph Ford-Schmid: We do Fed Ex our samples, but we have four laboratories on contract; and money was in a fund for one of them, so they went to that laboratory which got swamped with other samples. LANL uses that laboratory, and were shipping that laboratory samples and flooded it. Normal turnaround is 30-60 days. Hope that they will get back to speed. Didn't put rush on the samples, didn't want to increase the cost.

James Bearzi: With $400,000, it's not a lot of money. And we have to figure out which samples need 24-hour turnaround; and heard loud and clear that using the same laboratory is not good enough. Heard that loud and clear and acted on it, got another laboratory. LANL was using our preferred laboratory because it was the best one. One

of the things we will be assessing will be the need for 24-hour turnaround. Recognize that there is a need to get data out with meaningful interpretation for the lay person.

Alice Roos: When you use money as a reason to slow something down, give the public a dollar amount of what is holding it up.

Robert Alvarez: Since Secretary Richardson said $661 million is being dedicated to deal with the aftermath of the fire, would assume that the State will be preparing a very detailed budget based on the protocol of how they will be doing the sampling, and how to gear up to manage the outsourcing, to get up a more serious, robust effort. The current level of oversight by the State is less than minimal and if you want the State to perform as a quality assurance meter, need a more robust system, much more. Can't have the State competing with LANL for laboratories. **State needs to step up to the plate and get its plan on the table for the flood season and the next five years of flood seasons.**

Toby Herzlich: Is there way to build up this funding?

Robert Alvarez: In the political world, like reptiles, the more heat you generate, the more responsive they will be.

Alice: Report available.

¥ Shannyn Sollitt: Thank all from DOE and LANL for coming here. As well as CCNS. Heavy responsibility to protect people for 250,000 years. Ken Mullen, what percentage of those photos were from cleanup of fire?

Ken Mullen: All but one. Hydro-mulching was not from the fire.

Shannyn Sollitt: Was concerned to see children up there working on that.

Ken Mullen: Those were all above LANL on Forest Service lands, and there is no reason to believe that there is any contamination on those lands. Volunteers from community.

Toby Herzlich: Trying to decrease water runoff to LANL.

Shannyn Sollitt: Depleted uranium was in the air; was probably taken onto the plants.

Ken Mullen: There is no depleted uranium above LANL.

Shannyn Sollitt: It is from nuclear testing. Ask Steve Reneau about naturally occurring background plutonium.

Steve Reneau: The background is from atmospheric testing and atmospheric detonation of nuclear weapons. As someone said, it's all over the world.

Robert Alvarez: **I wouldn't trivialize health effects of nuclear weapons testing. There were 20 million curies at Chernobyl; 150 million curies at Nevada Test Sites.**

Disingenuous to consider fallout to be "natural" and call it "naturally occurring" background plutonium.

Steve Reneau: I didn't mean to trivialize. Just the baseline number used to determine levels now.

Shannyn Sollitt: About against NM laws about the watershed, etc.; couldn't those laws be overridden in NM law if you told them that the watershed was potentially contaminating people and crops? Couldn't that be taken to court?

Steve Reneau: First heard this with dam at Pajarito Canyon; had to design with big culverts to drain within 4 days so not to violate water laws.

Shannyn Sollitt: Does it make sense to any of you to have a nuclear weapons production facility at the source of a watershed? (Applause.) And if not, what can you do about it?

Robert Alvarez: No, but if not for Robert Oppenheimer having asthma, this site would not exist.

Shannyn Sollitt: It's time to move it. You are responsible for the health and welfare of the people, you can address it within LANL, I hope that you do.

Toby Herzlich: Ask to make the questions more direct.

¥ Q: Best Management Practices will take place till vegetation will take over that role. Time line? Until then, all these little dams and cachements fill up and overflow. Are the resources there to keep these things sturdy? Is the sediment behind these things to be tested and if found above safe levels, what will you do with it?

Ted Taylor: Yes, we will be testing that; and where we will take it will depend on what it is contaminated with; if it's just a little radioactive material, Area G; if it's hazardous material, we take it to an offsite licensed RCRA facility. Vegetative re-growth? Steve Reneau said US Forest Service says 3-5 years. Grass seeded in May already sprouting.

¥ Sue: What kind of long term goals do you have? How will you show that you are truly committed to working with grassroots organizations and ordinary citizens?

Lee McAtee: Vitally important for LANL to work with citizens' groups and public. There's a series of evolutionary states that organizations tend to go through; start not talking; then talking at each other. Then gradually evolve to beginning to listen to one another, but don't let public or citizens influence them; then if things continue to work positively; get to point where public becomes integral part of decision making. We've been in first and second stages and are moving now into the third stage, hope we will really get to the last step sooner rather than later.

Toby Herzlich: Today's event is in the interest of that evolution.

Ralph Ford-Schmid: Our Oversight Bureau is trying to get monitoring programs. We need a program set up to know what is important to public and have public meetings;

primary purpose to shape monitoring programs; don't work for LANL, work for the State and you. Come to our public meetings and if you don't like what we're doing, let us know and we will adapt our monitoring programs to accommodate your needs.

James Bearzi: Short term answer, over last 2 months; I will go anywhere, any time and talk to anyone. **The people who have called me have influenced our agency decisions on where and how to sample.** Long term, this flood risk analysis team, one big facet of plan is to develop communication plan to do just this.

¥ Sheena, Multiple Chemical Sensitivity Task Force: Since many people affected by exposure to levels of toxins that are not safe, have you taken into account the number of people who can be made very ill by very small levels of toxins?

Ted Taylor: We have never made that accommodation in our analysis; just assume typical adult; typical child doing typical activities as per EPA scenarios. We do look at multiple chemical exposures, but assume the "typical" person.

Sheena: Suggest change; make this part of the citizen oversight.

James Bearzi: Asked for her phone number and put her in contact with the state risk assessment people, not sure we fully appreciated this as well.

¥ Dominic Otero, Cochiti Pueblo: Apologize for Governor Wilson having to leave; don't speak on behalf of Governor; but on behalf of people downstream since day one, not since the fire. My questions are: **Has there ever been a study of our people regarding disease, cancer clusters, as compared to Native people upstream?** You have records available at Bureau of Indian Affairs hospital in Santa Fe; we have been going there for generations. I see a lot of illness that we never saw before. My family has never suffered from cancer; but I almost lost my sister to cancer.

Also, we're here to develop dialogue between citizens and technical people. So you wouldn't mind if someone from CCNS goes with you on these samplings and tests so they can report back to us to develop a trust? You're asking us as Indian people to sample on our land. We would like to do the same thing on your land. (Applause.) Cochiti Dam has been there for 30 years. There is 30 years of sediment on the bottom of that lake. Lot of strange things happen there. Personally, Ralph Ford-Schmid, you have my permission to work with Cochiti Pueblo.

The spiritual part of it, addressed by Lee McAtee. **If you want to see how we feel about the situation, we call this Earth our Mother, because she gives life.** Why isn't there a woman sitting up there? (Applause.) They have a different perspective, enlightening point of view that we males tend to forget. If you want to see how we feel about the water, we have a gathering, a ceremony, in about 6 days at Cochiti Pueblo. Put aside your books and learning, see how people suffer under the heat to pray for the water. Mother Earth has immense power to heal herself. She has survived all kinds of pollution and human activity. She will cleanse herself again. **What are we going to do about our lifeblood going out down the middle of the state and affecting other people?** The time will come when there will be no water, because we take it for granted. How would

you feel if those jugs (on the table) were filled with water from the Rio, because that is what our families drink every day. Creator be with you to make this decision for all of us.

Anna Hansen thanked Dominic for what he said. It was the women of CCNS who made this happen; the women of this community. Women holding the container and being there.

Ted Taylor: We do have an arrangement with San Ildefonso Pueblo; have trained their staff; are taking samples on their land; San Ildefonso is sampling on our land; San Ildefonso will be constructing the risk scenario for their land. Will do the same with Cochiti Pueblo; have had one meeting and will have more. My religious faith accepts the earth-centered religions. **Also believe it is the men who have screwed up the world for these many years; we are working on fixing that.**

¥ Jay Coghlan, Nuclear Watch of NM: Thank women of CCNS for arranging this event. **Think a needed analytical tool is a burn map of LANL property with overlays of the watershed system with PRSs and the firing sites that might have burned, with the fullest possible list of contaminants; way to hold down the contamination; how to get the best risk management/cleanup; and how those sites are prioritized and their BMPs are decided.** When can I get it?

Ted Taylor: **Much of it exists on the web site already**; overlaid maps. Have several data bases with erosion risk scores; don't know if we can overlay it; but will see how we can work that out. It really is a big data management problem; we don't have all of the info requested, but can pull together from different data bases, prioritization program is a different system, although the facility of such a map may be difficult.

Jay Coghlan: Apologies to Lee McAtee. Why is not there a comprehensive integrated plan related to all of the fire remediation activities. DOE has explicitly waived the normal public comment requirements under the National Environmental Policy Act (NEPA). No beef with that as is emergency situation. **However an integrated plan is needed from a number of different dimensions, NEPA has been waived, to collate and compile such a plan would be first step to fulfilling those federal requirements and this is badly needed a management tool.** University of California (UC) is being questioned on security issues; cost overruns; dubious environmental record at LANL; budget issues stemming from obvious major federal actions. Congress and the Office of Management and Budget would be highly interested in such a plan. Regulators, including NMED, would use this to know in advance what the scope of activities are to know what action needs to be taken, rather than always reacting. Would be better to know what the scope of activities is rather than be in reactive mode. Invite everybody to comment. When, and where, and how do I get it? **Where is this integrated master plan for dealing with fire related activities?**

Robert Alvarez: I agree entirely. But a master plan has to be a staged process, interim and over time. **Has to be long range strategic planning effort**. Tie that to a series -- think about the end stage of this site, a strategic plan needs one. Everything has an end point -- what is going to be left behind here? Everyone is throwing a lot of money at the problem, "ready, shoot, aim" dynamic. "Formal and disciplined" planning processes that think these out very carefully and make them transparent to those outside. A master plan

must include the regulators and what their needs are over time. Truly believe that the NMED DOE Oversight Bureau, although they have less than minimal capability to do so right now, must over time rise to the occasion. State must have resources to do its job under the RCRA. This funding is a hangnail compared to the kind of funds the State should be going after.

Lee McAtee: No need to apologize. I agree that we need to do this. LANL has organized its response into phases 1 and 2. Phase 1 is immediate needs that need to be taken on a 4-8 week period from the fire until now. Phase 2 is long range remediation of environment; biological, natural, cultural across the entire spectrum of needs. In normal course of times we tend to do these things much more serially and methodically than we're forced to do in this case. Most logical way would be to have a lot of planning and prioritizing, a lot of discussion, a lot of in a serial fashion going from point a, to point b, to point c. Very quick, lot of action needed for this, worked 19 days straight during fire, now 6 days a week, 70 hours a week, focus on what to do when the rains come over and above normal paperwork. Not an excuse, agree we need to do this.

We issued a project plan outlining the major risks, evaluations and actions going on throughout LANL. Have been trying to update people on a continual basis with daily press releases. Identify what done day to day, and plans next week, as well as other activities that are being prepared. Also having public meetings on Friday mornings. Must have had 50-60 interviews in last 2 months. Striving to get info and provide opportunities for people to comment back. These are stopgaps. **Project plan will be on web by Monday**. There is also a supporting info web page. Maps, contaminants reports, etc. Needs to be pulled together and consolidated in a way to make sense and be interpreted easily.

Finally, in response to the NEPA, there has been an emergency waiver granted, but not an exception. Are starting to put together a NEPA assessment. First meeting early next week to start to pull together and lay out all the actions to take place. Explains NEPA, which requires evaluation of new programs and facilities, potential environmental impacts, provide to public, and give public opportunity to comment. Environmental Impact Statements and NEPA assessments are done under NEPA.

James Bearzi: Like grabbing a tiger by the tail. Resources are short. It would be an excellent planning tool. We were in communication with LANL and DOE about such a plan. Jay Coghlan and others contacted him and provided valuable input, as they were able to take a more careful look from a different perspective, as we are limited by strict regulatory aspects. Yes, we expect to get it, and it will be a good planning tool. Yes, you can participate.

Toby: Really need input on citizens' oversight consortium. Please keep your questions short.

¥ Penelope McMullen, Sisters of Loretto: Sisters came here 148 years ago, but nothing compared to Pueblos. My community was much involved in closing Rocky Flats. Like a lot of what I heard today. Want to believe that we can work together. I don't know when to believe and when not to believe what I hear from LANL. Cites LANL statement earlier about naturally occurring sources, where area burned was contaminated with plutonium

and depleted uranium from testing. **Can you work on a process that helps you earn our trust again?** We have a trust problem.

Lee McAtee: As to the question of why won't LANL admit what's been released -- I have done so publicly and will do so again. **There is no question that there were contaminants released from LANL, the County, the houses and the forest as a result of this fire**. With extremely sensitive best available technology air monitoring, though you can always do more than we did, can always go to hindsight and question those things. But the fact is that with thousands of samples we've not been able to measure any contribution from the LANL or townsite. One sample collected by the State showed a very slightly elevated level of americium. Could have been from LANL, from smoke detectors, or anomaly. Also, there was a large release of radioactivity from natural sources, which occurs in any wildfire.

¥ Rowena Dickerson: Thank you, many of my questions were answered. I'm the sister of Dominic Otero, Cochiti Pueblo. Also ask why no women on the panel. Trust was the issue to me here, but dynamics; raised platform, barrier between us; you have a lot of info to offer, but I want to be able to believe and trust. So for future, think about some of the dynamics of communication.

¥ Monica Steinhoff: To respond to Cochiti People. Used to swim in Cochiti Lake; but stopped 10 years ago because got rashes; many others did because heard Cochiti was radioactive. There is another way of knowing, other than all the information around. Examples: Son's best friend died from brain tumor; hiked around Los Alamos all their lives. Water level dropping can be seen in the trees dying. Trees dying to provide more (paper) information. **Only a Band-Aid; things will get much, much worse. What we need to do is to stop building these weapons!**

¥ Q: Were people at LANL measuring releases and if so, why not? Measuring plume as it occurred? If so, why not? Isn't that scientifically possible? Can look at what burned and estimate what would have been released? Shouldn't there be double the monitoring going on?

James Bearzi: I'm a water guy and NMED's Sandra Ely is the air "gal" -- but, to be frank, this caught a lot of people by surprise. The State wasn't wholly unprepared, but it took a day or two to get it together; there was 10-20 times the normal monitoring; this was posted real-time on the web site. Interpretation isn't as easy to do in real-time. A lot of scurrying around that didn't perhaps accomplish all we could have. Another part: Is the technology available to detect the release at a PRS? **There are not, in my opinion, complete links between a release being able to be detected with the best monitoring equipment. Even if there was a release, what was the exposure and the dose? All we saw that was not related to naturally occurring radioactivity was the americium above mentioned. Relationship between exposure and the risk.**

Lee McAtee: Referenced map of air samplers. LANL has 60 that run routinely all the time on and around LANL, including Santa Fe, Taos, White Rock, Pojoaque. Run 24 hours 7 days a week. Have for years. At the beginning of the fire these were operational and throughout the fire. As soon as it became obvious fire was going to LANL property we notified the State to mobilize. Also called in resources from DOE Livermore, Sandia,

WIPP and Pantex, and EPA, and they were out within hours to do monitoring. There was a huge increase in the amount of air sampling.

Robert Alvarez: **Concerned however about what kind of exposure the firefighters may have received.** They had the most exposure to resuspended and oxidized contaminants. Can we follow them over time? Were they badged? Will they be followed over time for beryllium, etc.? They were closest to the source. I have seen no data about the firefighters. During Hanford fire they were badged and a bioassay regime was instituted fairly quickly. **This is a serious gap in our understanding about the nature of the risks of this fire to humans.**

Lee McAtee: **Two major groups of firefighters. The group that largely protected LANL was the Los Alamos County Fire Department, 65 individuals in that unit, assigned to protect LANL. Increasingly the US Forest Service brought up its hotshot crews who were in the national forest fighting the fire. The firefighters in the proximity of LANL all had badges and they are part of a routine bioassay programs. We've evaluated all of those badges and see nothing. Also badged a number of the remediation crews, and see nothing. A small number of firefighters came to request bioassays, and we are supporting those requests, although we do not believe there is any need.**

Ralph Ford Schmid: There is a modeling effort at LANL. Tom Buhl was instructed to look at the environmental impact statement (EIS) estimate of dose, if these sites would catch on fire. He is now trying to look at these sites and PRSs and trying to model them. Since we weren't able to detect much using the same factors that are in the EIS.

Robert Alvarez: I'm very concerned about this because from here on out DOE has to understand that regular firefighters going onto nuclear sites should be mandatorily treated as such. It costs money, is time consuming, but is necessary. Badges -- it depends on where you wear it. A film badge won't pick up beryllium. **Firefighters on DOE sites involving major nuclear emergencies should be put under a mandatory regime of radiation protection, monitoring and follow-up. It shouldn't be a burden,** shouldn't be done after the fact upon request. (Applause.)

Ralph Ford-Schmid said he will talk with Tom Buhl and see if any of this uranium modeling can be applied to beryllium, and if there are data gaps, we will sample sites on which there is no data.

¥ Jim Bones: **Add to list monitoring health of Cochiti, San Ildefonso, Santa Clara, Picuris, etc. Pueblos.** Monitor health of firefighters. The rehabilitation of the watershed relies on revegetation thereof. Ask Ken Mullen to outline ongoing plan for accelerating revegetation.

Ken Mullen: US Forest Service responsible for reforestation above LANL. Very much a unified effort between LANL and Forest Service. On LANL, LANL is doing that. Immediately the reseeding of grasses to hold soil. Beyond that the Forest Service plans to plant trees over many years.

Lee McAtee: 84% of the 9,000 acres burned on LANL property were low intensity burns, can be healthy for the environment. Cause seedpods to open, put nutrients back into soil. Short term erosion potential, but will revegetate with natural processes.

¥ Jim Bones to James Bearzi: You said that most of what LANL is doing is correct, what is not?

James Bearzi: What isn't correct are those things that we questioned primarily because we didn't have as much up-front notice of the activities as we thought we should. There is a regulatory situation LANL may face. Bureaucratically speaking, more or less emergency condition right now. Creating lots of waste piles. Managing them fine, but piles are a really bad thing under RCRA. But in some cases LANL is doing environmental restoration activities without notice to State, and may question some of the priorities. Should you have done that before this? How come you didn't do this first? Really mainly a question of priorities. **Everything they are doing subsequent to the fire is a positive step to protect the environment. Primary concern is: Are we going to be creating more problems in the future with waste management activities?**

¥ Takahashi Tanamori, survivor of Hiroshima bombing. 0.7 miles from ground zero, lost six members of family. I understand the concern you have about these fire issues. I feel for you, yet sense the fear, distrust. Don't think this is caused by the nuclear issue, but our own human hearts. Fear, divisiveness, distrust, anger, hatred. We do not know our own hearts.

I have tremendously struggled since I lost my parents. And have been told many times by Americans that the reason the bomb was dropped there was because Japanese attacked Pearl Harbor. That's not the simple answer. Goes back way more than that. Heard US used atomic bomb to hasten the end of the war, to save the lives of American soldiers. July 16, 1945 conference, Emperor Hirohito sent letter of surrender to Truman on the day you tested bomb at Trinity site (in NM). Truman also received the note saying, "It's a boy," meaning nuclear test succeeded. Then he rejected Emperor's offer of surrender. Four days later, Truman, who rejected the first surrender terms, accepted the same surrender terms after using the bomb. Are we still continuing to use that avenue, us against you? Us against them? This spiritual confrontation? Do we have time now, time long over, time for reconciliation?

I came to that in my own heart, enemy was not Japanese government or the American people. I recognized that my heart was my greatest enemy. Many American folks have touched my life. I came to realize that one day I have to let go the painful past. In my own heart experienced forgiveness, scarred body. Lost my sight due to radiation exposure. Lost stomach and spleen due to cancers from atomic bomb. **As physical sight closed in, began to see bigger vision in my heart, that is to make the final war we each fight, to learn to forgive, to make peace with the painful past. When we realize what happened in the painful past truly and honestly, we have an opportunity to deal honestly and truthfully in generations to come, so they may find a better place.** Thank you.

Anna Hansen, CCNS: Thank you. This is the first of many opportunities for LANL to listen to us. How we intend to proceed. Need your help; we are a small group. Your

help is welcome. We want to set up our own citizen oversight structure. Want your input; continue to be active. Will use the CCNS/LANL Clean Air Act audits as a model, using both technical experts and citizens' groups. Will continue to work on the White Paper. Then will work on quarterly report, and will do a report card to grade LANL on how they are communicating with us. Will share this with newspapers who will report accurate news.

Thank Bob Alvarez for coming to be the catalyst. Thank DOE, John Themelis, Lee McAtee, Ken Mullen, Ted Taylor, Steve Reneau, Ralph Ford-Schmid and James Bearzi for participating. Also ask you all to contact EPA to remind them the regulations are not good enough. That is a minimum. They have to do more. NMED, our friends, need more money to do the good work.

Also thank morning panelists for coming, Keith Easthouse, Elaine Hebard, Jon Asher, Louie Hena, Owen Hoffman, Jim Ruttenber, Chellis Glendinning, and Deb Hibbard.. Grateful for Pueblo participation. Especially for Toby Herzlich doing such a great job. And Leslie Larson again and again. Eldorado Hotel for donating the room at cost. Pinon Fast Print, Jim Bones, Flower Market, Copy Shack, volunteers, staff. So, so grateful.

For all sentient beings that we all be blessed and dedicate it to every living being and river on the planet.

CLOSING PRAYER