

OCCUPATIONAL HEALTH HAZARDS OF OLDER WORKERS IN NEW MEXICO

HEARING
BEFORE THE
SPECIAL COMMITTEE ON AGING
UNITED STATES SENATE
NINETY-SIXTH CONGRESS
FIRST SESSION

GRANTS, N. MEX.

AUGUST 30, 1979



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OCCUPATIONAL HEALTH HAZARDS OF OLDER WORKERS IN NEW MEXICO

THURSDAY, AUGUST 30, 1979

U.S. SENATE,
SPECIAL COMMITTEE ON AGING,
Grants, N. Mex.

The committee met, pursuant to notice, at 1:30 p.m., in the Holiday Inn, Grants, N. Mex., Senator Pete V. Domenici presiding.

Present: Senator Domenici.

Also present: David A. Rust, minority staff director; Eileen Winkelman, minority professional staff member; Nell Ryan, professional staff member; and Kathleen L. Makris, minority clerk.

OPENING STATEMENT BY SENATOR PETE V. DOMENICI

Senator DOMENICI. This is an official hearing of the Senate Special Committee on Aging. We are conducting this hearing as part of our continuing effort to assess the impact on older workers of occupational health hazards and to discuss what is being done to address the health needs of these older workers.

Before we start, I want to thank the committee staff, Eileen Winkelman, on my right; Dave Rust, on my left. They have seen to it that we put together, in 4 hours, a good set of witnesses on this issue.

I am pleased to be with you here today.

We are here today to explore the health problems confronting older workers who were involved in the mining and processing of uranium during the early decades of the nuclear age in the United States. The members of the Senate Special Committee on Aging have a keen interest in these occupational hazards which, over a long period of time, disable or kill many older Americans.

The U.S. Government, the sole procurer of uranium for defense purposes during the period 1948 until approximately 1962, failed in its responsibility to make sure that uranium mining operations were carried out in a manner which insured the safety and health of the workers involved. We now have evidence that the Atomic Energy Commission knew back then that these mines were unsafe and improperly ventilated, but that nothing significant was done to alleviate these conditions. The simple fact that so many miners who worked during this time are now contracting disabling and fatal diseases as the result of the Federal Government's irresponsibility and inaction is a tragedy of that era.

These early victims of the nuclear age—those men who mined in towns near here and in States adjacent—are the victims in many instances of bureaucracy and governmental excess at their worst. For years these men and their survivors have tried and, for the most part,

failed, in their efforts to obtain adequate compensation for their diseases. These men were victims of their own Government until that Government, and many State governments, finally took significant responsibility for correcting conditions in the mines.

As I have indicated, the misfortunes we are now witnessing are the result of mistakes made in the past. Conditions in today's uranium mines are vastly improved when one compares them to those existing in the early days. The average uranium miner of today has a good income, works under safer and more healthful conditions, has a nice home, decent insurance and benefits awaiting him should he need them. But the uranium miner of two decades ago never had those things.

Our early uranium miners made a valuable contribution to this Nation's security. It is this Senator's opinion that we owe these men, and their survivors, more than just a moral debt. We owe them decent medical care and some financial security in their old age. That is the goal of the proposed legislation which we will discuss here today.

To the extent that I did not read my entire statement, it will be made a part of the record at this point.

[The prepared statement of Senator Domenici follows:]

STATEMENT OF SENATOR PETE V. DOMENICI

Ladies and gentlemen, I am pleased to be here in Grants, N. Mex., to explore the health problems confronting those workers who were involved in the mining and processing of uranium during the early decades of the nuclear age. The members of the Senate Special Committee on Aging have a keen interest in those occupational hazards that, over a long period of time, disable or kill many older Americans.

The average uranium miner in America today has a good income, works in safe and healthful conditions, has a nice home, good insurance, and has benefits awaiting him should he ever need them. But the uranium miner of two decades ago, never had those things. He worked in small cramped mines we now call dog holes where there was poor ventilation and virtually no regard for safety.

Back then, uranium was mined solely for the Atomic Energy Commission. It was used exclusively for the Nation's nuclear arsenal. Now we have evidence that the Atomic Energy Commission knew those mines were unsafe but never did anything about them.

The victims of the Atomic Energy Commission's errors are sitting all around us in this room today; many are coming from hospitals to this hearing to tell their story. Many others never made it to this hearing. The survivors today are victims of much more than the mines. They are victims of bureaucracy and governmental excesses at their worst. For years, these men and their survivors have tried, and for the most part failed, to obtain adequate compensation benefits for their diseases.

We are talking today about the early victims of the nuclear age; those men who mined uranium in towns near here and in other States during the 1950's and 1960's. These men were victims of their own Government until that Government, and many State governments, finally took some responsibility for correcting these conditions.

I am planning to introduce legislation to try and fairly compensate these miners and their survivors who have not obtained, or had difficulty obtaining, fair compensation.

The U.S. Government, the sole procurer of uranium from 1948 until the mid-1960's, failed in its responsibility to make sure that uranium mining operations were carried out in a manner which would have ensured the safety and health of the workers.

In its haste to extract sufficient quantities of uranium for weapons production during this period, the Government failed to use medical knowledge already available to upgrade the safety and health standards of the mines. The simple fact that so many uranium miners who mined during this period are now contracting disabling and fatal diseases as the direct result of Federal irresponsibility and inaction is a tragedy of major proportions.

As I said earlier, this is the result of past mistakes. I will ask many of the witnesses who appear here today to contrast the situation in our mines now with the conditions that existed when many of the men in this room mined uranium for the Government. In fact, the differences are apparent to even nonexperts such as myself. In visiting one of the dog holes today, I was covered with protective clothing. Many of the men who sit before us now never were so protected.

This failure, and the fact that many of the afflicted miners and their survivors are not eligible for compensation under existing workman's compensation law, has prompted me to formulate legislation to try and right a wrong of many years.

This draft legislation, which some of the witnesses will comment on this afternoon, is a substantially revised version of the bill I introduced last year (S. 3199). I am also certain that this draft will be changed considerably as a result of the hearings we are holding. But the basic intent of this new bill is to establish a fair benefit program to be financed in full by the Federal Government, to compensate miners and their survivors who contracted diseases due to overexposure to radiation.

The miners who extracted uranium from the Colorado Plateau in the 1940's, 1950's, and 1960's are paying the price today for the inadequate safety and health standards that were then in force. These miners made a valuable contribution to our national security. We owe these men and their survivors more than just a moral debt. We owe them decent medical care, and some financial security in their old age.

Little can be done now to prevent death and disease among those who received excessive doses of radiation during these early years of uranium mining. The legislation we will introduce will compensate them and their survivors. But taken in perspective any compensation will be small indeed.

Senator DOMENICI. We are going to try and conduct most of this hearing by calling panels to the witness table. This will prevent duplication. To the extent that it helps, each will be there as support for the other.

The first panel is afflicted miners and survivors of miners. Let me quickly run down my list and as I call your name, would you please indicate to me who you are.

Eulis, I believe you are going to lead off for me.

PANEL OF AFFLICTED MINERS AND SURVIVORS

STATEMENT OF EULIS W. DAVIS, GRANTS, N. MEX.

Mr. DAVIS. Yes; I came here and went to work on June 1, 1957, for a small company. Later on, I went to work for United Nuclear Homestake. I have been with them for about 21½ years.

I went to work for United Nuclear Homestake, as it is known now. At that time, it was Homestake and Sapin Pinion. At that time, our working level was pretty high. Later on, it was cut down to a lot less working level.

Senator DOMENICI. What do you mean by a working level cutoff?

Mr. DAVIS. The working level they like to maintain is 0.30, which would be three-tenths of a working level. Earlier, the cutoff was a 10-working level, which was real high. Right now the Federal Government would fine the company if they caught them working people in this kind of a working level.

When I first went to work there, we didn't come in contact with the offices because they were down here in town, most of the mining offices were, and we didn't get the safety talks out in the field. We weren't told, earlier, about the radon daughters being harmful to a person's health. They didn't tell us about radon and smoking being harmful. We were allowed to smoke cigarettes underground until some time in the 1960's, around 1967, I do believe.

Senator DOMENICI. Did you smoke?

Mr. DAVIS. Yes; I smoked underground, the same as about 90 percent of the other miners.

In October 1978, I had to go to the office to talk to my supervisor, and he informed me that I had a spot on my right lung. I went to the doctor and he recommended me a surgeon in Albuquerque. I went over there, and he told me, just out and out, that I had cancer. He said it was up to me to prove that he was wrong, but he was right. On November 15 of last year, I was operated on and two lobes of my right lung were removed. I came back home and was feeling pretty good, but in January they released me to go to work.

I went to work in January and it was kind of painful, but it was good for me, I believe now, for you to have to get out and get around.

Then in June, I found out that I had another spot on my left lung. On July 10, I went into the hospital and this lower lobe on my left lung was removed. I do have a lot of difficulty in breathing. I cough a lot. I don't really mean to do that, but I can't help it.

The surgery was not successful the last time. They removed the spot in my lung, but the tubes are taking radio therapy right now. The wife and I, we have to stay in Albuquerque in an apartment through the week and drive back and forth on the weekends to our home here in Grants.

Senator DOMENICI. So you are getting treatment over there during the week, is that what you are saying?

Mr. DAVIS. I am taking radium therapy at St. Joseph's Hospital every day. It isn't painful, but it does make you sick in your stomach once in a while, and you lose a meal now and then. I try not to do that. I have to carry oxygen with me all the time and keep it within a few yards of me so that I can pick it up if I get to coughing and I can control the coughing with oxygen and I don't have to breath so hard. I can't overexert in any way. Thank you.

Senator DOMENICI. Let me ask you just a couple of questions, Mr. Davis.

Who is your doctor?

Mr. DAVIS. Dr. Gorman.

Senator DOMENICI. Has he given you or anyone an opinion in writing as to the cause of your cancer?

Mr. DAVIS. He said this cancer was the same type that comes from cigarette smoking and uranium. He said, when he talked to me, that either one of them could create this type of a cancer alone.

Senator DOMENICI. Have you applied for financial assistance for medical costs and are you receiving any?

Mr. DAVIS. Not yet I haven't. I still draw my salary that I was drawing whenever I was working in the mines.

Senator DOMENICI. When you first started working in the mines, were they somewhat different in terms of safety?

Mr. DAVIS. It was very different. We kind of formed our own safety standards out there. I had worked in other fields, and I was very new at this time, in this type of mining and this type of ground. We had to all get used to it when we came here. It was very different to what we had been working in.

Senator DOMENICI. What were you working in?

Mr. DAVIS. We were working in, most of us, in Colorado, Oklahoma, and Arizona. They was working in different types of ground—lead, zinc, copper. I was working in lead and zinc.

Senator DOMENICI. So you had worked in lead and zinc underground before you worked here?

Mr. DAVIS. Yes.

Senator DOMENICI. Did you have an opportunity to take any annual physical examinations during these years?

Mr. DAVIS. We take an examination once a year.

Senator DOMENICI. And you took advantage of that?

Mr. DAVIS. Yes.

Senator DOMENICI. And that was all the way through these years as you have described them to me?

Mr. DAVIS. Any place I have been in mining, we had an annual examination, physicals.

Senator DOMENICI. Are you going to have to have additional surgery?

Mr. DAVIS. God, I hope not. I can hardly breathe now.

Senator DOMENICI. So the doctor has not told you that you need any additional surgery?

Mr. DAVIS. I have had surgery on both lungs.

Senator DOMENICI. Thank you very much.

We may have a few more questions of you shortly, Mr. Davis, but be patient as we go on with these few more witnesses, and maybe I will get back to you.

Do you feel all right?

Mr. DAVIS. I am feeling fine. Thank you.

Senator DOMENICI. Mr. McDermott?

STATEMENT OF ROBERT McDERMOTT, GRANTS, N. MEX.

Mr. McDERMOTT. I came down here in 1959 and went to work for the company, the same as Mr. Davis. The conditions out here was pretty lousy in those days. We had very little ventilation. The mine that I worked in was so smoky and everything that you could actually take a knife and cut your way through it.

We take an annual physical every year down here. Last year I took mine and nothing came out of it. I wasn't notified of anything, so I went to Albuquerque and had a checkup, and the doctors over there said I have contacted silicosis. So far, the company hasn't done anything about it or said anything to me about this.

The State of New Mexico Workman's Compensation Act is for miner's with silicosis. Why do we have to sue the company we work for? If we receive any money, we have to share it with lawyers. The miner with silicosis is the one with the problem. The company has not and never will give anyone a medical retirement. They would prefer you drop dead on the job, and then everything would be over with.

The State of New Mexico should give us miners with silicosis a lawyer free of charge. Then, when we get the money we are entitled to, we won't have to share it with some lawyer who uses our lung trouble to increase his bankroll.

Senator DOMENICI. Bob, are you still working?

Mr. McDERMOTT. Yes, I am still working.

Senator DOMENICI. Who is the doctor that treated you?

Mr. McDERMOTT. Dr. Mosten.

Senator DOMENICI. Are you still in touch with that doctor?

Mr. McDERMOTT. Yes; I will go back over to him some time after the first of the year.

Senator DOMENICI. When you have that disease, how does it affect you?

Mr. McDERMOTT. Mostly it affects my breathing.

Senator DOMENICI. So you are having a difficult time in breathing right now?

Mr. McDERMOTT. Just a little bit.

Senator DOMENICI. Can we perhaps get your permission to have the doctor give us a report on your condition and how he thinks you got it?

Mr. McDERMOTT. Yes; you have my permission for that.

Senator DOMENICI. What mining did you do other than uranium mining?

Mr. McDERMOTT. I never worked in a mine before, until I came down here.

Senator DOMENICI. Can you just quickly tell me how many underground mines you have worked in during this period of time?

Mr. McDERMOTT. For this company, I have worked in section 15, section 32, section 25.

Senator DOMENICI. I know, but how many years have you been in uranium mining?

Mr. McDERMOTT. Twenty years.

Senator DOMENICI. In 20 years, how many different underground mines have you worked in?

Mr. McDERMOTT. Just for this company I have worked in three different mines.

Senator DOMENICI. And that is all the mines you have worked in?

Mr. McDERMOTT. Yes.

Senator DOMENICI. Can you go back to the early years, the first five or six, and compare the situation with today, and tell me if the ventilation is different?

Mr. McDERMOTT. Oh, yes. The ventilation has picked up quite a bit. They are doing everything they can to control the ventilation. It is a lot better now than it was 20 years ago.

Senator DOMENICI. Do you remember approximately when conditions in the mines began to improve?

Mr. McDERMOTT. It started about 10 years ago, when they started really doing a lot of work, and putting in more fresh air fans, and it has really done the job underground.

Senator DOMENICI. Warren Bailey?

STATEMENT OF WARREN BAILEY, GRANTS, N. MEX.

Mr. BAILEY. I have been working in this area for 17 years for one mining company. I have developed lung trouble and also kidney trouble. I have several doctors and hospitals that I have been to, and I will give you a release on all of them if you wish.

The main thing I would like to speak of right now is about the widows and the distance in between the cutoff and the time of social security or any help comes to them. It has been too long and it is too high for them to exist in this period of time.

At this time, I would like to thank the wives of the mining people for trying to do two jobs at one time, housekeeping and nursing the sick here in the Grants area.

I do have quite a lot of trouble. They have got me on an oxygen machine in my home, and medication, which helps me to breathe and get along quite well. I have to go back the 17th of this month for reevaluation.

Senator DOMENICI. Mr. Bailey, how old are you?

Mr. BAILEY. I am 67.

Senator DOMENICI. I understand that you have some pus sacs forming on your lungs—have the doctors told you that?

Mr. BAILEY. Yes, they did.

Senator DOMENICI. And when did they identify those?

Mr. BAILEY. That was back in 1966 or 1967. Dr. Ritter is the one that told me about it.

Senator DOMENICI. How about your most recent doctors; what do they say about your condition?

Mr. BAILEY. I forget the exact time, but they operated on my kidney and also went into my lungs. They said they had to close it up. I did ask them what the conditions were and they generally go off on medical terms and other things which I didn't understand.

Senator DOMENICI. Did they tell you that this condition, in their opinion, was from your work in the mines?

Mr. BAILEY. Definitely. That is from three hospitals that will verify that.

Senator DOMENICI. Have you ever sought compensation or benefits or are you still working?

Mr. BAILEY. I haven't worked since 1975.

Senator DOMENICI. Do you get compensation?

Mr. BAILEY. Just the social security, and it isn't quite enough to pay for my medical.

Senator DOMENICI. You don't get workmen's compensation?

Mr. BAILEY. No; I do not.

Senator DOMENICI. And you do not get benefits for your medical other than the social security?

Mr. BAILEY. I get medicare; whatever it is.

They don't pay you what they claim they do pay you on it.

Senator DOMENICI. That is from social security and not from job-related insurance?

Mr. BAILEY. That is from social security.

Senator DOMENICI. All right. Stay there for a little while. I might have some more questions for you, Mr. Bailey.

Agnes Ratliff?

STATEMENT OF AGNES M. RATLIFF, GRANTS, N. MEX.

Mrs. RATLIFF. My husband's name was Charles Richard Ratliff. He died August 13, 1975, at the age of 46. He had worked in sections 15 and 25 for United Nuclear Homestake for 17 years. He got ill on July 18, started losing weight and appetite. He was admitted to a hospital in Albuquerque on July 24 and underwent cobalt and radiation treatments and other tests. They did him no good.

We then brought him home.

On August 10, he became ill again and we put him back in the hospital where he went into a coma. His liver had collapsed, and the cancer had spread all through his body. He died early on August 13. Autopsy reports said his cause of death was a collapsed lung and lung cancer. I filed a lawsuit against United Nuclear Homestake in March

1976 based on the X-rays that we got from the Grants Clinic. They would only release 5 years of them. He had spots, which is silicosis or cancer, on the lungs.

I received, in March 1978, a lawsuit check from United Nuclear Homestake. Other than that, I have received nothing but \$250 from social security for his burial.

I hope this will help other wives to be able to receive benefits.

Senator DOMENICI. Was it difficult for you to be compensated for your husband's death?

Mrs. RATLIFF. We had started to file compensation when he got sick, but he died within 2 weeks and they wouldn't give me anything but his \$5,000, I think, is what they give me.

Senator DOMENICI. So you then filed a lawsuit for your husband's death?

Mrs. RATLIFF. Yes; I did.

Senator DOMENICI. And that was not based upon compensation laws; or do you know?

Mrs. RATLIFF. Yes; it was compensation laws.

Senator DOMENICI. And you did collect under that lawsuit?

Mrs. RATLIFF. Yes; I sure did.

Senator DOMENICI. Did you have a chance to talk to the doctors and your husband before his death, and can you tell us whether the doctor said it was from the mine conditions?

Mrs. RATLIFF. Yes; we had a hard time getting the X-rays. The mining company said they weren't theirs, the clinic said they weren't theirs to release. I believe they ended up getting a court order to get them. Dr. Valdivia would only release 5 years of them. The doctor told my husband at that time they were just sick to see his lungs, the condition they were in.

Senator DOMENICI. Did he work in any mines other than uranium?

Mrs. RATLIFF. He worked at Climax, Colo.

Senator DOMENICI. What kind of mine?

Mrs. RATLIFF. Molybdenum.

Senator DOMENICI. Underground?

Mrs. RATLIFF. Yes.

Senator DOMENICI. How long did he do that?

Mrs. RATLIFF. Probably 5 or 6 years.

Senator DOMENICI. And 17 years here?

Mrs. RATLIFF. Yes.

Senator DOMENICI. How about the financial assistance for the medical costs prior to his death; who paid those?

Mrs. RATLIFF. The company paid 80 percent of what they pay on the insurance.

Senator DOMENICI. Did your husband take an annual physical examination?

Mrs. RATLIFF. Yes; I believe he took two a year. On his last one, they had called him back in and took X-rays and then his foreman had told him there was nothing wrong with him, and that was in March of the same year.

Senator DOMENICI. All right?

Dennis?

STATEMENT OF DENNIS HEPPLER, GRANTS, N. MEX.

Mr. HEPPLER. I guess I will be speaking on behalf of my mother for my father who died in 1969. He came to work at Grants in June 1958. He had been in the copper mines in Arizona for about 3 years, and a gold mine in South Dakota for about 7 years before that. It is pretty much the same story as you have heard already. When we came to work here, the air was real bad in those days.

Annual physicals, the company policy was everybody took an annual physical. You heard he received an annual physical about 4 months before he died and they found nothing wrong with him. He was feeling bad and we took him to the veterans hospital. He had cancer and he was dead in 6 weeks. The same there. There was no compensation. He drew his company insurance and being as how we went to the veterans hospital there was no, you know, no major doctor bills for him.

Senator DOMENICI. How old was your father when that occurred?

Mr. HEPPLER. He was 48 or 49 when he died.

I have got a picture that I dug out this morning and had a copy made. I would like to turn that in. It is a picture of Homestake section 25 safety dinner in 1961. There were 58 men that attended this safety dinner and 6 of them are either dead—5 are dead. The only one that is not dead is Harry Barnes, who has got cancer right now. I have them circled. I would like for you to look at that.

Senator DOMENICI. Let me look at that and ask you a few questions about it.

What about your partners, Ray—

Mr. HEPPLER. Ray Randle is on this picture. He and I were partners at section 30 Kerr-McGee afterwards. Smith and I worked as partners in section 32. He is not in that picture. However, he worked in section 25 at that time. Slim Daireyberry didn't make the safety dinner that night either, but he was working there at that time. My dad, him and I had worked as partners in section 25, too. There is probably 30 percent of the people on that picture that I haven't heard of in years, so I don't know what health they are in, where they are, or anything about it.

I don't mean to contradict Mr. Cordwood, but if we will look back in the 1950's and early 1960's, there were no Federal regulations on radon in these mines. When they started checking radon it was about 1967. In our area, we had 150 in 200 working levels. Today, the Federal shutdown is one working level. So it may have been coincidence, but it is ironic that the year that uranium went on the open market is the same year that they started checking radon. It just seems kind of strange.

Senator DOMENICI. Am I correct, then, that your father—how long had he worked before he died?

Mr. HEPPLER. He worked from 1958 until 1969, in section 25.

Senator DOMENICI. And he died at 49?

Mr. HEPPLER. Yes; Randles died at about 46; Gonzoles probably 33, 34; Al was 63 or 64.

Senator DOMENICI. Why was Al so much older than you all?

Mr. HEPPLER. I don't know. It was just one of them things. Mr. Davis came to work in 1966, I believe.

Mr. DAVIS. It was 1963 or 1964, in section 25.

Mr. HEPPLER. The people in this picture, they were all there at one time. In those days, there were no regulations on radon. We didn't know what radon was. Nobody had ever told us the word. We never heard of a daughter; we had never heard of radon. There were some real cute jokes going around the mine when they first started checking radon there. So, you know, if the Government knew enough to build bombs with that, they did know that this radon was there, it seems kind of strange that they never said a word about it until the year that the stuff went on the open market.

Senator DOMENICI. Let me ask you about yourself.

Mr. HEPPLER. I went to work in section 25 in 1960. I worked, well, I kind of traveled around a little bit. I went to section 25, 32, for Homestake. I worked sections 30, 30-west, and 19 for Kerr-McGee. This is my third time back at section 25. I get restless now and then.

Senator DOMENICI. You seem to remember quite well back to the earlier days. Can you, not in great detail, but once again describe for me the conditions, say, 15 years ago versus now as you, as a miner, observed them?

Mr. HEPPLER. Say, 15 years ago, section 25, the air come down the shaft and went east and west down the main hall on the 745 level. Then it was pumped up into the stokes with fans, came right back out and carried right on down the main haulage levels. It went from there up to the 640 level and all of it congested at the 640 vent raises. We had two small boreholes. We worked on the last stoke before the vent raise on the 640. Like I say, the radon was anything like 150 to 160 working levels most of the time in that area. When the the Federal people came in, they said you couldn't mine under this any more. They shut it down to 10 or 12 working levels. Consequently, the company had pretty well shut down operations, drilled these holes, put big fans in, rerouted the air to where the same contamination didn't flow all the way through the mine. They put more holes in separate areas to haul it out. So we have a lot better ventilation system now and you can keep fresh air in your working places.

Senator DOMENICI. How about dust?

Mr. HEPPLER. Dust is a problem. It still is a problem in some areas. It wasn't quite as bad then at section 25 because there was a lot of water in the mine. The mine is now drying out and we have quite a little dust around the trackless equipment.

Senator DOMENICI. Did your father or your partners, to your knowledge, receive any workmen's compensation benefits?

Mr. HEPPLER. I believe, and I am not sure, but I believe, well, I know Dad didn't. He was on sick leave, which is you accumulate 15 days a year with the company. I don't know if Slim Derryberry ever did. He was off for almost a year and had most of one lung and part of another one removed. Then he came back to work for the company, or come back, they carried him on the payroll, and he hoisted for about a year or two. Then he started feeling bad so he went back to Oklahoma and died out there. I don't know what he received before he was done. Smith, I am not sure, because it has been several years since Al and I worked together.

Senator DOMENICI. Do you take an annual physical?

Mr. HEPPLER. Yes.

Senator DOMENICI. What is the condition of your health now?

Mr. HEPPLER. I know as much as anybody knows or any of the miners know. We don't get the results of our physicals. The company and the doctors get them.

Senator DOMENICI. In light of that particular approach, you have not been told that there is anything wrong with you?

Mr. HEPPLER. No, I haven't.

Another thing that is kind of strange. It is a policy of the company and a Federal law, they keep a running tally on us, our exposure for the year. Nobody knows unless you make a special appointment and go in and see what your radiation exposure is. They keep your radon exposure and gamma exposure for the year. You are only allowed so much exposure. I know that me and the partner I have now, and another crew that works right by us, we were on the endangered list, you know, high radiation. If you receive so much, they have to pull you out of the mine. So we were on that list at one time this year, but we have done a lot of work in the stoke, got a lot better air, so we should be coming down.

Senator DOMENICI. This picture that you gave me, are you going to have a few minutes here this afternoon where you could go ahead and write all their names down—not just those that you know and know died, but all of them? Let's find out where they are.

Mr. HEPPLER. Fine.

Senator DOMENICI. I want to ask you about the medical records. Why don't you get your medical records, and why don't you know what those records indicate about the condition of your health?

Mr. HEPPLER. I don't know. I imagine it is because the company pays for the physical so they receive the results. Unless they find something that the doctor tells them is drastically wrong, they don't notify anyone.

Senator DOMENICI. To put it another way—you have not seen fit to ask for your records and have gone along with that approach to this point? They keep them and you don't know anything about them. Presumably, from what other people have told us, you will find out if you end up being sick, but not otherwise, is that what you understand it to be?

Mr. HEPPLER. That is about the size of it.

I went in 1 year ago and had another physical in Albuquerque at a doctor's there. He said I was in pretty good shape. As far as the company annual physicals, unless you have a bad spot or something on your lungs, you aren't notified as to what the results are.

Senator DOMENICI. Thank you very much.

Harry Barnes, I understand that your dad is not well enough to be here. We would like to hear what you want to say in his behalf. If he has anything in writing that he wants you to introduce, you can submit it to us and we will make it a part of the record.¹

STATEMENT OF HARRY R. BARNES, GRANTS, N. MEX.

Mr. BARNES. He didn't send anything in writing. He did kind of tell me the general area that he wanted to cover.

Dad started in uranium mines in late 1956 or early 1957 at the St. Anthony mine east of Grants. It is a pit now. At about that time, it

¹ See app. 2, item 1, p. 84.

was about a 300-foot shaft. It had no ventilation at all except what came down the shaft; no boreholes whatsoever.

In 1958, he came to work for United Nuclear Homestake and worked for them until 1975 when he went on disability. In addition to working in the uranium mines, he had about 10 years of experience with the Climax Molybdenum Co., in Climax, Colo.

In mid-1975, my father went on long-term disability, because he was having high blood pressure and an extremely hard time breathing. He tried, between the period of 1975 and 1978, to get social security, and in the three attempts that he made, he was turned down on all three counts.

In April 1978, the insurance company that carried long-term disability on my father said that since he wasn't eligible for social security, they were also going to discontinue his long-term disability, which they did at that time.

My father then sold his house and moved to Arizona, hoping that the climate would help him breathe a little bit better and he would have access to the Veterans Hospital in Tucson.

In January of this year, my father got to feeling real bad and went over to the veterans hospital and gave them the symptoms that he had, and when they went through the tests they discovered that he had cancer in his left lung. They operated on him in March of this year and removed his left lung, or the back lobe of it. He has been undergoing radiation treatment since that time. From April 1978 to right now, my father has not had any insurance, no income, and no help, really.

Dr. Garfield at the VA hospital said the type of cancer my father has is definitely associated with uranium. In addition, he did say the tumors were not something that just grew there this January. They had probably been there about 2 to 4 years. That is probably some of the problems he was having about 1975. Apparently this tumor would secrete and fill up his lungs where he would lose his best breathing capacity.

In talking with my father, I feel that he, I don't know if this is going to be in time to help him or not, but other people that are coming into it need some help. I feel that the Government—in 1967 I started in the mines and at that time I remember representatives from the Atomic Energy Commission coming underground and looking at the mine. I personally took them in section 15. I feel the Government, and industry as well, owes my dad a debt. They had a need for the uranium at that time and now that—I think, too, the knowledge of it at that time wasn't all that well. I feel we filled a need of our country at that time and they should help these people today when they need help.

Senator DOMENICI. Did your dad tell you anything about whether the mines are different now than they were back then?

Mr. BARNES. Oh, yes. I started in 1967 and got out and you can tell that now. When he started, they really didn't know, like Dennis said, what it was, they had no idea what they were working in or what a randon daughter was. By today's standards, they sit and joke and say, gee, we must have been in 400, 500 working levels back in those days. The common practice, I guess, out in this area in the early days was to reverse the shaft to make it from a downcast to an upcast. What you are doing is sucking all the air through all these stokes down all your main haulage. In the wintertime they will do it to defrost the shaft. What you are doing is doubling the radiation these men are exposed to.

They have stopped that now. It is illegal to do that. At that time, it was common practice.

Senator DOMENICI. Your father is 60 now?

Mr. BARNES. Yes. He will be 60 in October.

Senator DOMENICI. If you would, tell him what you have told us, and we will leave the record open approximately 15 days, and he can write a supplement to yours and express any other concerns.

Mr. BARNES. Yes.

Senator DOMENICI. Garland Taylor?

STATEMENT OF GARLAND TAYLOR, GRANTS, N. MEX.

Mr. TAYLOR. Senator Domenici, ladies and gentlemen, my name is Garland Taylor. I am president of the Grants State Bank, Grants, N. Mex. I have been there since 1966.

I am not an afflicted miner. I am not a survivor. I am testifying because of first-hand observance, Senator, of the economic hardships on families and the physical hardships on families when the breadwinner is disabled due to radiation induced or latent dust induced disease arising out of employment in uranium mines in the early periods of the industry.

As I see the problem, the men who pioneered in the early uranium mining were not apprised of the inherent dangers of working with this type ore. During World War II, it was done on a small scale and enlarged in the 1950's when this Nation increased its experimentation with and the stockpiling of uranium for the purpose of warfare.

As is normally true, pioneering in any field of endeavor is filled with mistakes. The early miners worked in mines where ventilation was at a minimum and safeguards now in effect were nonexistent. It is these early pioneers who became most affected with lung diseases. Recently, I was in a modern uranium mine and was most impressed with the excellent air-handling processes and safety conditions imposed to protect the present-day miner from radon gases. It is the people who worked in uranium mining in the early days who present the problem.

One example that I am personally aware of is a miner who worked in vanadium mines during World War II. This mine was also rich in uranium ore and his lungs were blistered from its presence in the mine. He died of lung cancer about 2 years ago. His widow still has to work, even though she is past 65, in order to just make a living.

As a banker, I am keenly aware of the economic needs of the people. This is something that we see every day. I see the impact of inflation on the American family. If the wage earner in the family becomes ill and is unable to work, a few days of missed income can cause a family to become financially distressed. In the case of the wage earner becoming totally disabled, then the economic impact on the family is disastrous. The wife must work or the family must apply for welfare aid to survive. In our modern day world, a constant income is necessary just to exist.

For the miner who is now unable to work because of lung cancer or pulmonary fibrosis and silicosis, the problem becomes acute. Not only does he have to help to feed, to clothe, and to shelter himself and his family, he needs help medically.

If the miner dies, the family is faced not only with the problem of survival, but also that of unpaid medical bills, funeral costs, and emotional strain.

The solution, as I see it, Senator Domenici's bill, Uranium Miner's Compensation Act of 1979, would go a long way in helping those people affected. As I read the proposed bill, it would compensate the disabled and provide for miner families where the miner is deceased. Since the early days ore was produced for the Federal Government, I feel it is only fair that they provide assistance to disabled miners and their families who have suffered as a result of their having taken part in producing uranium ore. This is in line with coal miners and their families receiving financial assistance for black lung disease incurred in coal mining.

I believe this is a good bill. I urge its passage.

Thank you for this opportunity to testify.

Senator DOMENICI. I want to take time to thank you for your analysis of the problem.

How long have you lived here?

Mr. TAYLOR. Since 1966, 13 years.

Senator DOMENICI. And you actually have seen a number of these cases where you personally were convinced that the illness of the breadwinner, as you called them, was because of health conditions in the mines?

Mr. TAYLOR. Yes; a good many of them have been my customers. Some of them are sitting at this table.

Senator DOMENICI. Do you agree that we ought to make this compensation approach simple? I am led to believe that miners, because of the transient nature of their work and the long latency period associated with these diseases, encounter enormous kinds of problems. In one State, they say you got sick in the other State, then they go back there and they say you got sick in the other State. At least this was the early days of compensation. Don't you think we ought to be able to figure out a better way than that to compensate people?

Mr. TAYLOR. Yes; I think it must be done on a nationwide basis. I think the Federal Government was the one that wanted the uranium in the first place, and they are the ones that should be liable. It seems like they did not take the safety precautions that were necessary. The miner that I spoke of that worked in the vanadium mine in the Colorado Plateau, and a lot of the people, as it did mention here, came to this area from Colorado. Therefore, if Colorado has a compensation law, it doesn't help the person that moved here a number of years ago. They might move from here to Utah or to Wyoming as the uranium ore is found in other areas. I think it must be done on a Federal basis.

Senator DOMENICI. Thank you very much.

Let me say to all of you—to the media and to our friends here in the audience—I am not going to go into any more detail, and I am not going to try and get expert views with reference to what you have told me here today. That will evolve in due course. What I am trying to do this afternoon is to get enough information and backup for the need to introduce this bill. It will then go to one of the committees in the Senate that has jurisdiction to pass it. The mandate of the Aging Committee is to look at problems like these affecting older Americans and to recommend solutions. That is the purpose of our hearing today.

I want to tell you that while many might think you should go into much more detail with us today, we purposely wanted a number of you to express yourselves just simply and in your way and give us

your view of why you think we ought to have a better compensation approach for you or your relatives.

We are going to excuse all of you.

We do want you to write those names down for us.

Thank you very much.

I think I'm going to change the order of panels so that we can vary the testimony a bit.

I wonder if the attorneys would mind going now.

Secretary Udall, would you be amenable to going now instead of waiting?

Secretary UDALL. Yes.

Senator DOMENICI. All right.

How about George Harrison?

Fine, and how about Brent Wilcox?

All right, very fine.

If the three of you will please take these seats, we'll get started.

All right, now, can we have a little bit of order, please, and would you members of the press just do me the favor of giving me a little light here?

All right. What I'm going to do is ask Stewart Udall—I think you all know he's a former Congressman and former Secretary of the Department of the Interior—to lead off, and let me just quickly tell you what I hope our three panelists will do.

All three of them have attempted to work with compensation laws, as they exist in the various States, to get compensation for miners who claim they have contracted illnesses while working. They're going to review my proposed legislation and also tell us about the difficulties that the miners have in getting adequate compensation when they have illnesses of the type we just heard about from our first group of panelists.

I think I would be remiss if I didn't thank you, Mr. Secretary, not only for coming a long distance today to be with us, but for your genuine concern for the people in this area, and for your help to us and discussions with our staff about things that you have learned in pursuing remedies for Navajo Indian people and others in our State and the Four Corners area.

Thank you very much. If you'll lead off, then we will follow with the other two.

PANEL OF COMPENSATION ATTORNEYS

STATEMENT OF HON. STEWART L. UDALL, WASHINGTON, D.C., FORMER CONGRESSMAN AND FORMER SECRETARY, DEPARTMENT OF THE INTERIOR

Secretary UDALL. Thank you very much, Senator.

Let me say first—and I'm sure I speak for all of the Navajos and for all of the victims and victims' relatives in this room—that we have heard a very pathetic story here already—it's a disgraceful story—how unresponsive governments have been. I think it's true in the past, although the bills were introduced, that Congress has neglected this area, and I simply want to say to you that this kind of leadership that you're providing at this hearing here today is long overdue, and I personally commend you for it.

Senator DOMENICI. Thank you very much.

Secretary UDALL. Senator, I got involved in this 11 months ago as a result of conversations I had with some of the Indian leaders from the Four Corners area, some of the Navajo Indian leaders. I have a prepared statement, but I'm not going to read it. I've got too much to say. I stand by everything in it, and I only have a few copies for the press. So I'm going to move rapidly; and if I move too rapidly, you can ask me questions later. I also want to apologize to my colleagues here if I take too much time.

I have spent most of my life as a lawyer; the last year on radiation cases. I'm one of the lawyers representing people in the little towns and cities downwind from the Nevada bomb tests who are filing lawsuits today in Salt Lake City—you'll be reading about it in the paper this morning—but after I investigated the plight of Navajo widows and the surviving victims, the deeper I got into it the more depressed I was, and the more difficult it was to find out what had happened. I have seen a lot of buckpassing in the Government in my day, and I must say this is the most outrageous example that I have ever seen because the different agencies of the Federal Government each shrugged their shoulders, each passed the buck on to someone else, and it wasn't until about 2 or 3 months ago that I began to see daylight in my investigation. I began to see that at least two agencies of the Government were responsible, responsible in a tort sense, as well as morally responsible. You, yourself, Mr. Chairman, have commented on the role of the Atomic Energy Commission—I won't belabor that, except I believe there is evidence now, drawn out by congressional committees, that they knew from the very beginning that these men who have died of lung cancer would die.

They denied they had responsibility, but the Federal Tort Claims Act was passed in 1946, and, in my view, they had a duty to warn the miners, to warn the mine operators, to warn the States and the State safety agencies, to warn the Navajo Tribe, to warn the Bureau of Indian Affairs, of the dangers that they knew about.

Also, one of the scandalous things that came out in the 1967 hearings of the Joint Atomic Energy Commission, was that the Department of Labor, which has statutory responsibility to regulate health and safety any time a Federal procurement program is involved, that that Department did nothing. I'm still trying to reconstruct this. I think that because of the secrecy that surrounded everything the Atomic Energy Commission did, that nobody ever told the Department of Labor what was happening.

As a result of this, Senator, in addition to working with you, I am pursuing the approach through the court system. In the last 6 weeks, I have filed with the Department of Energy, and I'll probably file with the Department of Labor soon, claims of 20 Navajo widows of uranium miners, of 22 living Navajo uranium miners, of 125 children of the 20 dead Navajo uranium miners. The average number of children in these 20 families is 6. There are some families that have 14 children, 13 children, 12 children. I also have filed some 18 claims on behalf of widows and children that worked in one Utah mine.

I believe we are going to know in the next month, or 2 months, whether the Carter administration will face up to the fallout problem squarely and will either sit down with us and negotiate settlements or will support some kind of legislative approach. I think this kind of two-pronged attack on the problem is a very good one, Senator, and

I hope that you don't regard the efforts that I and others may be making through the court system, and under the Federal Tort Claims Act, act as counterproductive. It may be that this is the way to get the job done. It may be that our efforts complement each other, because what Congress did in 1946, when it passed the Federal Tort Claims Act, was it surrendered the immunity that the Government had always had to lawsuits, and gave individuals who were injured by a Government agency or Government department the same right to sue that they would have had as a private citizen, to sue Kerr-McGee, or General Motors, or anybody else. We're availing ourselves of that right, of course.

The fact of the matter is that most of these Navajo miners that I represent today are people that were mining in the late forties, the early fifties, and so on; most of them don't speak much English. Not only were they never warned, as they will tell you, there was very little communication.

Everyone should understand that in pursuing this through the court system, under the Federal Tort Claims Act, you can't just walk into court and file a lawsuit. You have to file a claim. It then has to set for 6 months, so that the earliest possible time that we could file lawsuits, probably in Phoenix, for the Navajos, would be sometime in January. Of course, that gives time to find out what the response of the administration will be, and what the response of Congress will be, so that we can at long last develop some kind of humane and generous remedy. We'll be working on the court approach vigorously, but we are very much interested, Senator, in your proposed legislation.

I want very quickly to do a critique of it, both pro and con.

It does strike me—and I know your advisers have made efforts, I urge that they make more efforts, to simplify this—that any legislation of this kind is cumbersome. It's complicated. However, where we're dealing with people that are not sophisticated, it's going to be difficult for them if legislation of this kind is passed, to know how to get relief and benefits. So the more simple it can be the better, it seems to me.

Another question that I want to raise, and this comes face to face with our efforts in the courts under the Federal Tort Claims Act. The legislation, as it sounds to me, is prospective. In other words, if this legislation is passed, from then on there will be benefits. There are people in this room, widows and others, representing men who have been dead 15 or 17 years, or longer than that. There are miners, some of these Navajo miners, who at the time they died, almost all of their children were miners, were dependent upon their parents. Under the tort laws of the United States, if your father is killed, a child has a claim. We have filed claims for \$500,000 on behalf of each widow, \$500,000 on behalf of each living victim, and \$150,000 on behalf of each child.

So one of the problems I want to surface here is that period of elapsed time. It may be that if we are to develop a system that is really just and complete, both justice through the courts, through the Federal Tort Claims Act, and this kind of legislation will be needed because this game is not over, and men will be dying for another 6 years, 8 years, 10 years. There are miners who were exposed during this worst period of exposure in the 1947-67 period, who will yet develop these horrible diseases.

Senator DOMENICI. If I could interrupt you for a minute. You raised two points there, the exclusivity—you are saying that you are recommending that we certainly not have the compensatory part of this bill be the exclusive remedy, as I understand it, or at least you're throwing that out?

Secretary UDALL. Yes, I'm throwing it at you, Senator. We've got a lot of other creative people in this room, I'm sure, and I'm just trying to toss at you in a hurry things we want to think about as to how these two approaches might mesh together, or how we might develop a broader, more generous piece of compensation legislation.

Senator DOMENICI. Now, about the prospectiveness, I can tell you this. Certainly we do not intend that, and I'm glad that you commented on it. We certainly intend if benefits should have been there and were not available, that they are there under this proposed legislation.

Secretary UDALL. The thing I want to point out, let's take an example of a Navajo Indian miner who died, let us say in 1965, 1967, just take a figure out of the air, and he left eight children. Under the Federal Tort Claims Act, each of those eight children has a cause of action against the Government if they can make it stick. That's a separate, individual cause of action, and they can recover.

Of course, under most compensation benefits systems, the widow gets money and then she gets a child allowance, and so on, but there is, of course, a tremendous difference if the woman has 1 child or has 14 children. Shouldn't we want to take that into account? This is a problem I simply want to surface with you.

Another major question I want to raise, and this is on page 9 of the legislation, is the 5-year threshold, the requirement that a person had to work 5 years.

I think it would be much more realistic, Senator, to base this on the work level exposure, because, as some of the witnesses were testifying earlier, a miner who worked in some of those mines in the 1950's, for example, got more exposure in 1 year than a miner in the newer, well-ventilated mines will get in 20 years. It may be that the yardstick you want is not time, but exposure. That's another suggestion.

Finally, on page 11, where there is a reference to 25 years, I think that must have been a misprint, wasn't the 25 years intended to be 5 years? Incidentally, I think the burden of proof section is very good, probably needs a little more thought, but that it moves in the right direction.

I think the provisions for medical care—which on the basis of the testimony we have already heard, is pathetic and inadequate—are excellent.

I wonder—and this is my final comment on the bill, Senator, too—whether a GS-2 level in terms of benefits is sufficient. I believe that we ought to take into account inflation and its inroads, and I think that we ought to recognize that these miners were sacrificed. As far as I'm concerned, the highest paid group of industrial workers in the United States ought to be the men that work underground in coal mines, uranium mines, and other mines. The sacrifice is obviously enormous that these people make.

Finally, Senator, I want to make a few closing comments.

Senator Kennedy's health committee, as you know, is also interested in this problem, and held a partial hearing in June on this question, and elicited some very important testimony.

Some of the Congressmen from the West—Nevada, Utah, and so on—are introducing legislation on the fallout question, and I understand Senator Kennedy and Senator Hatch—and that will be an interesting and rather potent combination—are also trying to get together on some legislation.

Their approach with regard to the fallout problem from the Nevada bomb tests, is to say that the Government was liable and then to prescribe the conditions under which the Government's liability will be administered. If that approach moves forward, maybe you might want to consider helping us make the Federal Tort Claims Act work by describing certain situations where Congress would assert either that the Government is liable, or that the Congress of the United States—which wrote the Federal Tort Claims Act—does not want the Government to use technical defenses like statute of limitation and discretionary function in these particular Federal Tort Claims Act cases. As a lawyer, Senator, I believe the uranium miners, both Indians and non-Indians, have a very strong case. The only thing that worries me is the Government might assert technical defenses; because unlike the Utah-Nevada situation where making the causation link is the big question, there is no doubt that the lung cancer and these other lung diseases were caused by the mining of the uranium miners.

The final thing I want to say to you, sir, is this: One thing that has bothered me all during the last year is that we seem to be rather generous when it comes to solving or trying to solve health problems as long as we're dealing with things. Let me give you an example:

The U.S. Government today is spending \$100 million to decontaminate Eniwetok Island, where some of the bomb tests took place in the Pacific. This is an area they actually can't decontaminate—I'll tell you that as a fact—but we're doing it anyway, so the United Nations will feel we're good guys, and we're spending all that money right today. Then in 1977, Congress voted \$180 million to cover the uranium tailings piles in these Western States. And again, the United States has spent \$125 million to \$150 million on medical studies of the survivors of Hiroshima and Nagasaki as a humanitarian measure.

An Atomic Energy Commission official boosted a few years ago that they had spent over \$300 million on research on cancer. Yet this hearing asks how much we are willing to spend on the human casualties of this effort to arm the Nation to provide a nuclear arsenal. What shall we do for these human beings who were sacrificed? Why is it that many people get horrified if someone proposes that we spend \$20 million, or \$50 million, or \$100 million helping the families and survivors of these uranium miners. I think it's about time that we faced up to the fact that there would have been no nuclear arsenal if there had not been these human beings who were willing to make sacrifices for their country. As far as I'm concerned, particularly from 1947 until 1962, when the U.S. Government was the sole procurement source, and ran the whole program. This was a Government program, pure and simple. These men, the dead and the living, were soldiers. They were the silent soldiers of the cold war effort, and I say it's about time that we recognized the contribution that they made to the country.

I thank you very much, Senator.

Senator DOMENICI. I thank you very much, Mr. Secretary. Do you have enough time to wait until the other witnesses have spoken?

Secretary UDALL. Oh, yes.

STATEMENT OF GEORGE HARRISON, FARMINGTON, N. MEX.

Mr. HARRISON. I'll try to speak to the experience in New Mexico where very few claims are being filed and try to give some insight into why that's the case and, also, a direct review of the bill.

Since criticism of the bills are frequently all criticism, I would like to say, as I think everyone on the panel will say, I think this is a better bill than has been introduced. It's moving in the right direction, and I think, with some modification, I think this is a bill which will do a lot of good, so as I go through and criticize various sections, I would like to say that, overall, I think the bill is moving in the right direction. I think, overall, the presumptions is where a bill has to start in this area.

In going through the bill, I'll try and give section numbers and page numbers. I know some of you have copies of the working draft and some of you don't.

The first section of the bill is findings, and one of the findings which I think we can speak to rather thoroughly is section 4, which states that existing workmen's compensation laws in most States do not provide adequate benefits, and, also, there are problems with the statute of limitations and burdens of proof.

I would like to go through the New Mexico occupational disease law, not thoroughly, but just hit a few sections to give you examples of what these miners are facing in court, or their attorneys are facing, in trying to get a claim under this act.

First of all, you are presumed to have accepted this act because you live in the State. That's section 5911.5, which states that every employee shall be conclusively presumed to have accepted the provisions of this act if his employer is subject to the provisions hereof and has complied with the requirements. That's certainly no option for the employee. Most of the employees back in those days didn't even know that this law existed. Of course, it's now posted wherever you have a lot of employees.

Then you get to the kicker to that, which is section 5911.6, which states that any employer who complied with the provisions of this act, including the provisions relating to insurance, shall not be subject to any other liability whatsoever for the disablement or death of an employee from occupational disease, except as this act provides. So if you don't come under this act in New Mexico, you've got a real big problem.

Some other sections which follow this same theme, section (b)(1) of 5911.10 states no compensation shall be paid when the last day of exposure of the employee to the hazards resulting in death from occupational disease shall have occurred prior to the passage of this law. So that if you got sick before this law was passed, you're completely out.

Section 4:

No compensation shall be paid from death from occupational disease other than a few exceptions that occurs more than 1 year after the date that you worked.

Now, there's an exception for radiation industry, and that's section (c) which states:

The time limits prescribed by this section shall not apply in case of an employee whose disablement or death is due to occupational exposure to radioactive or fissionable materials.

However, there's a kicker there, too:

Provided no compensation shall be paid in such a case unless such disablement or death shall occur within 10 years from the last day that they were employed in the mines.

Well, I interviewed a great deal of the victims in the Red Rock and Cove area, attempting to find some sort of remedy for them. We hadn't gotten to the Federal Tort Claims Act that Mr. Udall is pursuing, but in trying to find some sort of remedy through State law, everyone I interviewed, it had been 10 years, more than 10 years after they left the mines that they at least recognized that they had the cancer or that they died. So I have been unable to help any of the victims in this area, most of them Navajos, due to this particular provision in the statutes, and these are the types of technical provisions that make workmen's compensation laws, particularly in New Mexico, almost valueless for this particular problem.

Another area which we have touched on in this bill, occupational disease law, if you did qualify, it provides rather small benefits, \$1,500 for burial expenses and then a weekly sum which can be as low as \$35, I believe. Try and live on \$35 a week right now.

Now, one thing that the State law, which I think was neglected in this draft, has is the medical payments. The State compensation law, if you do qualify, pays all your medical bills. I think that certainly must be in the Federal act, and I think was probably an oversight that it wasn't in there, and I don't know if they intend to tie it into medicare or just provide outright payments, but something of that effect has to be in any type of workmen's compensation scheme.

I give one example from the State law just to show the kind of technical rules that can develop with this type of legislation, and that's how you file a claim. This is section 5911.15:

If an employer or his insured fails or refuses to pay a workman any installment of benefits to which the workman is entitled after notice has been given, it is the duty of the workman insisting on the payments and benefits to file a claim thereunder.

If he doesn't file it within 1 year, all benefits are forever waived, so if you have an employee who isn't familiar with the provisions of this act, is having some problems with the employer getting him to pay him, and he doesn't file a claim within 1 year, forget it.

Then section (e):

No claim shall be filed, however, to cover benefits of the death of a workman unless he or someone on his behalf or on behalf of his eligible dependent has given notice in the manner and within the time required under the statutes and unless the claim is filed within 1 year of the date of the death.

So if the workman doesn't know about the law and doesn't file, and if the widow comes in to see you, and no one has given notice under the statute, again you're out.

I give examples of these types of law because frequently in Senator Domenici's bill it calls for the Secretary to establish regulations. Well, those of us who deal with Federal laws know what these regulations usually come out looking like, and these are the types of requirements that appear in State laws that we have got to try very hard to avoid in the Federal law.

Particularly the Navajos in the Four Corners area are simply not going to be able to comply with extremely complicated procedural

tasks, and I think at the very worst a lack of procedure should maybe reduce some back claims but should never stop people from receiving benefits.

Senator DOMENICI. George, we borrowed as much as we could from black lung legislation both the old law and the most modern version, including some of the compensation schedules that the Secretary addressed on the GS-2's—that's right out of the most current black lung law. We're going to try our best, with the help of your suggestions and others, to make sure it is simple, and that it will work, but it's really hard to find any model other than to beg and borrow from the various laws to which all of you are referring.

Mr. HARRISON. Black lung is an example. I could give you names of attorneys in Albuquerque at random and have you call them and ask them how to file a black lung claim; and if one of them knew how, I would be rather surprised.

Senator DOMENICI. I don't think they file them. I think they bring them all to their Senator and Congressman.

Mr. HARRISON. I might add that I worked for social security before I went to law school, and dealt with a few of these problems.

Now, one thing that they do have in the workmen's compensation bill and they have in most workmen's compensation bills—and this may sound a little self-centered, but they have provisions for attorney's fees; and if you don't provide statutory attorney's fees under this type of legislation, any attorney fees are going to come out of the entitlement, and that's something I don't think you want in this area. If you are going to be giving someone GS-2 benefits, you don't want something deducted out of that to pay the attorney, and I think, no matter how simple you have this, where you're having to file for workmen's compensation first and then file for this, meet technical requirements, you're going to need attorneys to help them in most cases. It's a type of case that legal aid frequently cannot handle under their guidelines, and some kind of statutory attorney's fees would help give people access to these benefits.

Now I would like to turn directly to your draft bill. Turning to page 8, which is part of section (3), we have under section (3)(g)—let me see if I've got my notes right—it states that the Secretary, in consultation with the Director of National Institute of Occupational Safety, shall establish criteria for appropriate medical tests under this subsection which accurately reflect total disability in uranium miners.

We have heard some testimony from the miners already about the availability of medical services in this area. In most cases, to get adequate medical services and detailed testing, you have to go to Albuquerque. Well, we're talking about some miners in Monument Valley, Red Rock, Cove, and such. For them to get to Albuquerque for this testing is a major hardship. There's nothing in here which spells out how this is going to be paid for or if there's going to be any type of availability of mobile testing or crews sent out into the field.

Now, there's something at the end that talks about that a little bit, but my real question here is how are these tests going to be available, how is the cost going to be absorbed.

Other sections of this bill talk about using some of the existing social security machinery to make these determinations. Well, I know from experience that a disability determination under social security

frequently takes a minimum of 6 months. I'm sure the Senator gets weekly letters on that subject.

So if there is going to be no new facilities for this testing and this screening, we're going to have a major time delay in getting these people any kind of benefits, and so I think that's one thing that is somehow going to have to be addressed. I realize it's a serious problem, particularly in remote areas where most of the uranium mining is taking place.

Senator DOMENICI. George, I wonder now, in the interest of time, and I greatly appreciate your coming, if you could expedite your testimony; and if you have some details, if you will just furnish them to us, we'll make them part of the record.

I am just going to ask you, generally, whether you, as an expert, think the workmen's compensation laws adequately take care of the situation we have?

Mr. HARRISON. In New Mexico, they're almost completely valueless. They vary from State to State.

Senator DOMENICI. That's what I mean, in our State.

Mr. HARRISON. I would like to hit just a couple of other areas.

Again, just throughout this, there are places where the Secretary is going to prescribe through regulations—and again and again we need to keep these things simple—the presumptions on page 10, which I believe the Secretary spoke on a little bit, I think are pretty good. Most of the miners that I know of who have suffered seriously have worked about 5 years. I agree that exposure might be a better standard but I don't think we have exposure records back in the real early days, so that the use of exposure records might be impossible. So 5 years may be an adequate standard. I'm not sure.

I'll just try and shoot through here—again I think the 25 years standard on page 11 is a little bit strict. Most of the miners that I know of have worked as little as 7 years and have clearly had problems; and where we don't have these medical records, they probably aren't going to be able to prove for these past deaths without some kind of standard, and I think 5 years is probably better than 25.

Senator DOMENICI. I think that's a mistake there.

Mr. HARRISON. OK, the level of benefits, again I would like to say, I think is too small; and at that point, I think something has to be said about medical care. Somehow all the medical bills have to be paid one way or another.

Senator DOMENICI. Right. Incidentally, the levels are right out of the most current black lung law which we just finished redoing less than 18 months ago in the Senate and House. That doesn't mean it's adequate today, or for this kind of miner, and this kind of illness, but I do want you to know where it came from.

Mr. HARRISON. On page 19 I think is where we talk about, again there are going to be, according to regulations, and it looks like we're also requiring to apply for workmen's compensation or prove that workmen's compensation isn't available, and you're going to need an attorney to do that, and we're going to have to provide some sort of attorney's fees or some way to get these claims processed; and, then, as we get to the end of the bill, which I'm sure other people will address some of these other specific things, there are sections in here concerning funding for research, mobile health clinics, and so forth. I know these are the type of things that frequently pass in the bill and then don't get funded later.

I think in this particular bill these are critical. A person in Red Rock is not going to know that this bill has passed. They are not going to know that these benefits are available. They are not going to know what procedures they have to go through to file. We're going to need community education. These people can't get to Albuquerque or to the hospital. We're going to need mobile health facilities or some sort of way to get them to the hospital.

One final issue, there is a section in here asking the industry to track miners and maybe provide records, and so forth. That's got to be much stronger. We've got to know where these people are and what health effects there are that they are already suffering. If they have X-rays in the file showing a spot on a lung and no one knows about it, that person is not going to get treatment. So I think there is going to have to be—the industry is not going to pay the bills for this—and I think the industry is getting a tremendous benefit from this bill in not having to foot the bill for mistakes that were maybe partly caused by them and partly caused by the Federal Government. I think at the very least they should cooperate fully in tracking the miners and providing them with education on what might happen and perhaps even providing more health care to the current miners.

Senator DOMENICI. Thank you very much. If you have any other remarks, they can be made part of the record.

Mr. Wilcox, you're from Salt Lake City?

Mr. WILCOX. Yes; I am.

Senator DOMENICI. First, we want to thank you for coming down here. We know it's an inconvenience, and we appreciate any help you can give us.

STATEMENT OF W. BRENT WILCOX, SALT LAKE CITY, UTAH

Mr. WILCOX. I appreciate the invitation.

I have a real emotional attachment to this problem because for the last 5 years I have been representing a number of widows of miners who died after extensive exposure to uranium mining.

I am not going to go through a detailed description of our law. I've got that in a statement¹ that I will file with you.

From a legal standpoint, the Utah law is totally inadequate. The statute of limitations is unworkable. The definition of causation is mind boggling, and there are just numerous problems with it.

My experience indicates that the major problem is in establishing cause. If the law leaves it to doctors, on a case-by-case basis, to decide the causation of each miner's cancer, we will have an unworkable system as now exists in Utah.

Prior to 1975, we had six cases that I know of that were filed with the Utah Industrial Commission. Five of those cases were lost. The one who obtained benefits had been a nonsmoker for 18 years. The five that lost were smokers.

The chairman of the medical panel at that time, who was a smoker, testified that anybody who smoked and worked in the uranium mine was going to lose. In his opinion, smoking was always the primary cause of cancer.

After 1975, we filed four more cases, and the first two were held before the same panel. Both cases were lost again because of this same chairman.

¹ See p. 26.

In one case, the applicant, who was dead by the time we got to the hearing, had 5,700 working level-months of exposure. That is a horrendous amount of exposure.

I had Dr. Archer from the public health service testify in that hearing. He testified that with such extensive exposure, there was no question in his mind that it caused this miner's death. The medical panel found that the cause could be any number of things, including radiation and smoking.

In 1977, we were successful in getting this chairman removed from the panel and new doctors put on. The last three cases filed since then have been won. These cases were no different than the cases previously lost except for different doctors on the medical panel.

I would like to point out in that regard, that Dr. Archer started, in 1955, a study for the National Institute for the Occupational Safety and Health, to study uranium miners and the cause of cancer in them. He knew of the connection between radiation and cancer, and he was telling people.

Throughout the proposed bill, the term is used, "radiation-induced disease." In order to make the law effective, we need a presumption that primarily cancer in a uranium miner is a "radiation-induced disease" if he has worked in the uranium mines for a given amount of time or has been subject to a certain working level exposure. I think unless we have that presumption, we're just going to see the same thing going on—that is, medical panels set up with some doctors who believe radiation causes cancer and some who don't. You'll get inconsistent results, depending on where that panel is and who is on it.

Avoiding such inconsistency is the key to making this bill successful.

I would add one other thing. In regard to the statute of limitations, the bill should be very liberal because we have here a limited group of people who have been severely damaged from a cause not generally understood by them or the public in general.

Senator DOMENICI. I am most appreciative of your coming down here today. Your causation argument is a situation of grave concern to me. As I read the bill, I am very worried that we're going to get varying opinions from various sources with the end result being that some deserving persons remain uncompensated. Establishing the presumption may be the right way to go to get around this problem.

Mr. WILCOX. I think that's right.

Senator DOMENICI. We need something like that, don't you think?

Mr. WILCOX. I think it's absolutely essential because, like I say, I've seen it so many times where you have one doctor saying it is, one doctor saying it isn't, and I think the reason we're where we are now is because of what has occurred, thanks to Mr. Udall and others, in bringing to light the real historical knowledge of radiation.

Senator DOMENICI. I would enjoy nothing more than to have another half hour to exchange views with the three of you, but I'm not going to because so many people need to testify. I'm merely going to ask the three of you if you will give us the benefit of any additional views in writing.

We are going to get another bill drawn, and then we are going to introduce it, and then we'll only be starting with a substantive committee in the Senate in the normal process. This is a very preliminary hearing, designed to get some basic information. It's obvious that this record will absolutely identify the fact that there is no adequate

remedy now, and that's for sure, unless it is the Federal Tort Claims Act. There certainly is no remedy under the compensation laws in the Four Corners area. Colorado is having a little better situation, in the two States that have testified, but we will put that in the record, too, by somebody giving us an analysis of Colorado's and Arizona's.

Mr. HARRISON. If I could just add one thing. We could have a case where the original claim was filed in Colorado, but was sent to Utah because Colorado held that the last injurious exposure was in Utah. Utah could then hold that the last injurious exposure was in Colorado, thus no recovery. This problem can be eliminated by this bill.

Senator DOMENICI. The Secretary has raised a point that I certainly want to state right now in the record. While we are going to try to create a remedy which we are assuming does not exist now for a class of miners during an era of mining, we don't want, Mr. Secretary, to do anything that negates an existing claim as a matter of policy. If there is a tort claim, I can say going in, I don't want to make this the exclusive remedy to the detriment of that kind of claim.

On the other hand, I believe it's a matter of policy as to whether we would validate a tort claim approach as an option to a compensatory approach here and have them both running, one based upon negligence, one based upon the standard compensatory mechanism with presumptions, but I think we need some help on that. I think we need to think that through as a matter of policy.

Secretary UDALL. I think we need to discuss the interface between those, and it may very well be, Senator, if some of your colleagues—because you're going to need a lot of help on this—don't begin to line up behind your bill, then we ought to see if there are things we could do to help a lot of these people win their fights before the courts. I have suggested one or two things that would be very helpful.

Senator DOMENICI. If you had any statements that you did not read, they will be made a part of the record in full.

If you have any written bill language, or if you would like to help us by preparing some, we would be most appreciative.

Let me say to everyone here, we're going to take about a 5- or 6-minute recess, and then the next panel, panel B, of victims or survivors will be at the table, and if you will get ready, Harry, while we take a 5-minute break, get your people there. We will be in recess for 5 minutes.

[The prepared statement of W. Brent Wilcox follows:]

PREPARED STATEMENT OF W. BRENT WILCOX

The workmen's compensation laws of the State of Utah in practice and in substance are not adequate for the protection of uranium miners and their dependents. Utah's Occupational Disease Act, which is part of the Utah workmen's compensation law provides benefits for a wide spectrum of occupational diseases, including silicosis and exposure to ionizing radiation, however, it is deficient in my opinion to the following aspects:

(A) The statute of limitations is extremely harsh and vague. The statute of limitations for exposure to ionizing radiation is 1 year after the date upon which the employee first suffered incapacity from the exposure to radiation and either knew or in the exercise of reasonable diligence, should have known that the occupational disease was caused by his present or prior employment. In regard to the death of an employee with such a disease, the statute of limitations is the same. This provision is vague and extremely restrictive. Although the law attempts to define some of the terms used, the term "incapacity" is not defined as to what extent of disability or incapacity must be suffered before the statute

is triggered. Likewise, the question of when the employee should have known that his disease was caused by his present or prior employment is vague and obviously could be used restrictively against the employee.

Statutes of limitations for other occupational diseases differ. For example, the statute of limitations for silicosis provides that an action cannot be brought unless it is filed within 1 year after the cause of action arises. The cause of action arises when the employee first suffered incapacity from the occupational disease and knew or in the exercise of reasonable diligence should have known that the occupational disease was caused by his employment. In regard to death claims except from radiation, the knowledge of the dependent is the test rather than the knowledge of the employee. In addition, the law provides that in regard to silicosis, no compensation can be paid unless the injured employee has been exposed during the last 15 years to harmful quantities of silicon dioxide dust for a period of not less than 5 years and the total disability results either within 3 years in cases of silicosis not complicated by active tuberculosis or in 5 years in cases of silicosis complicated by active tuberculosis, from the last day on which the employee actually worked for the employer against whom compensation is required.

In other words it is extremely difficult for even a trained lawyer to know when and if a claim for silicosis or radiation exposure has begun to run or is barred.

(B) Proximate cause. The proximate cause test is a nightmare of legal language which no judge or lawyer could fairly apply to any given fact situation. The proximate cause test is as follows:

"The occupational diseases hereinafter defined shall be deemed to arise out of the employment, only if there is a direct causal connection between the conditions under which the work is performed and the occupational disease, and which can be seen to have followed as a natural incident of the work as a result of the exposure occasioned by the nature of the employment, and which can be fairly traced to the employment as the approximate cause, and which does not come from a hazard to which workman would have been equally exposed outside of the employment. A disease must be incidental to the character of the business and not independent of the relation of the employer and employee. The disease need not have been foreseen or expected but after its contraction it must appear to have had its origin in a risk connected with the employment, and to have flowed from that source as a natural consequence."

The practical effect of that language is to give the administrative law judge such broad discretion that he can rule on proximate cause either way and be sustained.

(c) The benefits under State law are inadequate. Under the newest amendments to the law, the maximum benefits which can be received are as follows:

For permanent total disability, 66⅔ percent of the employee's average weekly wages at the time the disability commenced with a maximum of 85 percent of the State average weekly wage at that time for 312 weeks, after which a special fund keeps up the payments at the same rate until the death of the permanently disabled person.

Temporary total disability for 52 weeks is 66⅔ percent of the employee's average weekly wages at the time the disability commenced with a maximum of 100 percent of the State average weekly wage.

Permanent partial disability is determined by a very complex rating system which in occupational disease usually results in very small benefits. Totally dependent or partly dependent persons receive 66⅔ percent of the decedent's average weekly wages at the time his disability commenced with a maximum of 85 percent of the State average weekly wage not to exceed 6 years of 312 weeks from the date the original disability commenced. Partly dependent persons may not receive more than \$15,000 under the usual payment provisions; however, a special fund is provided that pays 66⅔ percent of the deceased average weekly wages up to a maximum of 85 percent of the State average weekly wage until such dependency terminates. 85 percent of the State average weekly wage at the present time is \$178.50.

(C) Practical problems in obtaining relief under the laws of the State of Utah. The real hardship to the uranium mining claimants, be they miners or dependents, has been at the medical panel level. To my knowledge, prior to 1975, there were six cases brought before the State industrial commission involving either total disability or death of uranium miners. In all cases, except one, compensation was refused because the medical panel ruled that because the applicant smoked, radiation could not be said to be the cause of the cancer. In the one case in which the applicant prevailed, he did not smoke. The chairman of that medical panel testified that he would find against any uranium mining applicant who smoked regardless of what type of cancer cell was involved or regardless of any other circumstances or facts. Since 1975, I had four cases involving radiation exposure

with exposure of 30 years in one case. One of those cases went before the same medical panel which ruled as usual that because the miner smoked he should not recover. After repeated urging from myself and others for a change of medical panel personnel, a change was made in the panel after which partial recoveries were obtained in the next three cases, 60 percent in one case and 50 percent in the other two cases. These cases were essentially no different from the prior cases where no recovery was allowed.

It has been readily apparent that the medical panels chosen by the Industrial Commission of Utah have not generally been the persons who are knowledgeable of the effects of exposure to ionizing radiation in uranium mines. In fact, the Industrial Commission has refused to appoint Dr. Victor Archer, who is a well known expert in this area, to any of the panels. In several cases the commission has rejected Dr. Archer's testimony and accepted the testimony of a competing medical witness who had no training or experience in the effect of ionizing radiation in causing of cancer. There has been a great reluctance on the part of the medical panels and on the part of the Industrial Commission of the State of Utah to recognize that ionizing radiation is the proximate cause of cancer in uranium miners who smoke. The work of the U.S. Public Health service has shown the causative role of radiation in causing cancer in uranium miners, including those who smoke.

It is my firm belief that justice to the uranium miners and their dependents can only be done by a law which provides a presumption of causation after a certain length of exposure. The inconsistency brought about by the present system in Utah should be eliminated. The only way that can be done is to provide a tough presumption. The law also should have a realistic statute of limitations, if any at all. The injuries and death brought about by the service of miners in uranium mines from the 1950's up to the passage of the Metallic and Non-Metallic Safety Act is confined to a limited number of people, all of whom deserve a chance to seek compensation. The law should not unduly restrict the filing of claims by this group of people or their dependents.

Senator DOMENICI. I would now like to introduce the Honorable Harry Tome, Navajo tribal councilman from Window Rock.

One of the principal reasons we are here today is because Harry Tome first brought the issue of the health problems of uranium miners to my attention. It was a little over 2 years ago. It led me to introduce S. 3199 last year, which was the first effort, the first draft of a bill, to try and alleviate the problem we are discussing here today.

I thank you for that, Harry. I look forward to hearing your comments on this proposal.

Do you want to open up, Harry, or do you want to introduce people?

PANEL OF AFFLICTED MINERS AND SURVIVORS

STATEMENT OF HARRY TOME, WINDOW ROCK, N. MEX., NAVAJO TRIBAL COUNCILMAN

Mr. TOME. Thank you, Senator.

To my left is Harold Tso, director, Environmental Protection Commission, the Navajo Tribe; Carl Thomas, a miner; Pearl Nakai, and next to her is her daughter; on the end is Jessie Harrison, and her daughter next to her, her interpreter; the last one is Mae John; then Harris Charley.

Senator DOMENICI. Harris Charley is a miner also?

Mr. TOME. Yes.

Thank you, Senator. My name is Harry Tome. I am a councilman from Red Valley chapter, formerly called Red Rock, Ariz.

I have a prepared statement that I would like to put into the record.¹ Along with it, I do have three other statements² by the miners,

¹See p. 30.

²See app. 1, item 1, p. 77.

which are not here at this time. Also, I do have about 16 surveys that I will submit and ask that they be made a part of the record.³

I would like to say at this time that it was back in 1971 I found out this problem was in existence. It was the first time that I realized this was a problem. Since that time, I have met with the local leaders, the tribal council, and I have seen this very thing. I have seen these miners die left and right. I live with it. The saddest part that I have seen is when one of the miners die and you see them buried and the little ones cry and sit around the grave and say why did this have to happen to our father. This is about the saddest experience that I have seen. I have talked with the State representatives, also the House of Representatives in Washington, the Senators, they probably ignore it. They probably feel this is just a minor thing. The only person that ever listened to me was the late Senator Joseph Montoya. It was in 1972 when he sat down and listened to me and asked what is my problem. That is the time that I told the story of what has happened in my community. He is the one person that has worked with me side by side and introduced a bill in the Senate, but he was unable to get it to the full Congress because it adjourned at that time. We have attempted again and again to bring it up.

The last 2 years I have come to you, and you took time to sit down and listen to my problem. I thank you at this time that you were able to come halfway instead of me going all the way to Washington. You have come close to the reservation and listen to our problems one more time. I hope this will be the last time and the final one.

Senator DOMENICI. It will never be the last time. You will always have something to tell me; won't you?

Mr. TOME. That's right. I hope that you go back to Washington and tell your Congress to listen, there is a problem there that needs to be solved and the Government needs to correct this problem. I hope that you go back and tell your colleagues.

Without further ado, I would just like to briefly go over this problem. You know, of course, my Navajo tribal council did help me quite a bit to help you and assist you with this legislation you are now introducing. I have reviewed this and I do have little problems here and there.

Our attorney for the Navajo people, Stewart Udall, we have kind of had an exchange of ideas in this matter. We can sit down and have benefits for the Navajo Tribe and the other people that have testified here this afternoon. Without further ado, Senator, I would like to have Carl Thomas, who is a miner, tell you in his own native tongue about the problem we have. It is the law that my people don't understand, They don't understand the English. They don't know how to read the law. That is our biggest problem. I want him to come to the mike and tell you what he knows and what he has experienced.

Thank you.

Senator DOMENICI. Before Carl proceeds, Harry, you had some written statements. We are going to make those a part of the record—please be sure that we get them.

[The prepared statement of Mr. Tome follows:]

³ Retained in committee files.

PREPARED STATEMENT OF HARRY TOME

Good afternoon Senator Domenici, fellow councilmen, and ladies and gentlemen. My name is Harry Tome, I am the councilman from the Red Valley chapter on the Navajo Reservation in Northwest New Mexico, and Northeast Arizona. I have been a council delegate since 1971, 8 years.

I have come here at the urging of a large number of people not only in my chapter, but also in chapters nearby mine, Sanostee and Beclabito, as well as other areas, to bring to your attention, some of the urgent problems and needs of the Navajo people and more specifically, the Navajo miners.

Unfortunately, I am not able to document very well the entire picture of what has occurred in the past, for there are many persons who are not able to be here, because of very intense nature of the problem. I am referring to the many miners who have already suffered an early death as a result of their exposure to long-term radiation.

I will not dwell too much on the many hardships faced by the Navajo people, their poverty, the shorter life expectancy rates, and the high unemployment levels that occurs now on the reservation, but instead I bring to you just part of a story that the people in my community and in the nearby communities have put together, and at the end, I will make some recommendations on how conditions might be improved.

Ever since people in the communities begin to hear that you would be considering having a hearing on this matter, they have come to me, they have contacted all the agencies and tribal offices: the Environmental Protection Commission—of which I am a member—the health department, and others, trying to obtain documentation about the level of the problem. Unfortunately, most of these departments have little or no funds to make the necessary study of the situation. The Environmental Protection Commission, of the Navajo Tribe has been most responsive, as has been the tribal health division. However, they are unable to allocate their limited funds to make a thorough examination of the radiation levels that might exist at many of the homesites, and they have only been able to obtain a handful of data from some of the miners in the area. Both these departments and many of the tribal officials have been very active in getting the Government Accounting Office to make an examination of the water and wells in the mining areas, and more recently, to review the Churchrock Dam break that released contaminated waters into the Rio Puerco.

Several community workers have, also at the very active urging of the people living in our areas, completed a brief survey regarding the situation. We had originally hoped to complete this survey for a three-chapter area: Red Valley, Beclabito, and Sanostee. To be able to give you a better idea about the widespread nature of the problem, however, those plans have had to be substantially modified. Instead, we are only able to bring you some information that 16 miners have prepared for this hearing. We hope that in the future, somehow, resources to show the intense nature of the problem can be made available. I know that the people in my area are very willing to discuss the matter openly, for they have suffered the consequences for some time now.

I will be furnishing you with copies of the 16 survey forms that were collected, and some additional statements. But for now I wish to summarize the study:

The miners that were able to complete the form are relatively young, the average age is approximately 54.4 years of age, and they have, on the average, four persons to support. The income level, if you take out the income level of one person, is an average of \$5,184 annually.

Two of the miners from the survey have mined less than 6 years and one of these now suffers from major illness. Of the remaining, the average number of years they have worked in mines is approximately 15 years, with many having worked 22 or 23 years in different mines. Of these 14 miners, 13 now suffer from serious medical problems.

Unfortunately, only three or four have any kind of medical insurance, and as you might be able to guess by the average age, many cannot collect from social security.

The problems these miner's face at this point in their lives is tremendous. For the most part, they have little or no income, yet many are in their middle or late forties with families to support.

Some of the family members of the miners, too have developed serious long-term illness. One wife of a miner has suffered four still born babies.

I have not been able to obtain some clear-cut information regarding exactly when mines were developed on the reservation. I know that some people have

said that mining began on the reservation without any action by the tribal council. Of course, in those days people did not know of the dangers of uranium mining, however, we are now living with the consequences.

Several months ago, a CBS camera crew had heard about the problem and came out to the reservation to investigate. People heard about their visit, and in no time at all came forth with their information. Mr. Harold Tso, director of the Environmental Protection Commission of the tribe, was called upon to direct the crew as to the location of the mining sites. On their way, they stopped to talk with a miner and his family. A member of Mr. Tso's office accidentally turned on a Gieger counter, and it let out a loud sound. Upon further investigation, it was discovered that the house, which was made out of rock, was made out of highly radioactive material. The survey of the 16 miners indicated that two of the miners lived in houses made of tailings materials.

There are many other details of the study, as short as it is, that will begin to inform you, and hopefully the Congress, about the situation. As I have stated earlier, the study is not complete.

I am submitting with the survey, statements made by several miners regarding the mining conditions they were submitted to. Those statements reveal dramatically the intensity of the problem, and I am certain that some of the miners are present to give testimony.

As sad as the situation is, there are some things that can be done to begin to remedy the situation:

(1) We need to assess the situation. No one seems to know just how many miners are affected. The people in my community come to me and have come to me for many years, telling me their uncle has died, their brother has died, one woman has outlived three husbands, all of them miners who died early of some serious disease or another.

The people would like to see the Bureau of Indian Affairs and the Indian Health Service to help the communities in making a serious study of the situation. I feel certain that such a study will bear out many of the agonizing stories that have been told to me.

(2) There needs to be an examination of social security benefits, as I said, the life expectancy of Navajos is low, I believe it is now 58 years. The life expectancy of Navajo miners, I am sure, is far below that. I realize that you are here as part of your concern for the elderly, but I emphasize, Navajo's generally, and Navajo miners particularly, are not living long enough to be old. Those that survive are often not able to become eligible for social security benefits even though they may have worked for 20 years or more, or if they are eligible as a result of their age, they do not receive very much to support their families. Without social security benefits, they cannot receive medicare and medicaid. The cost of medical treatment must fall behind supporting their families.

(3) I know that we, Navajos, are not the only ones affected this way by uranium mining; other people in the Southwest probably have similar problems. Some sources of community development funds have recognized the problems and begun to address them. The Farmer's Home Administration, for example, has established an energy impacted area development assistance program, the section 601 program, which would bring resources to local communities adversely affected by mining, both coal and uranium. However, Indian tribes are not eligible to receive such funds. It is possible to receive some moneys under the planning section of the program by submitting an application to the State planning offices. But it is not possible to receive any community moneys for: (1) Site identification, and (2) site development, so that we could identify lands to clear off and grade so that houses for the elderly and for the many families affected by the mining, either relocated or disabled, can move into. We would like this law to be changed. We would like to be able to move people out of the contaminated housing they live in—especially those who have houses made of tailings, into safer housing, so that their children can grow to be healthy adults.

(4) Begin new legislation specifically for uranium miners, maybe something similar to those benefits given to coal miners through black lung benefits, only make sure that they have enough staff to do a good job in processing the applications. I understand that some people wait for years to complete the processing of their applications for black lung benefits.

(5) Support and urge special funding to the BIA and Indian Health Service to deal with the problem, both economic, housing, and especially the social problem that has been a result. Many of the families have had a tremendous stress as a result of seeing members of their families die and suffer from cancer.

(6) This relates to the other recommendations, encourage the funding of a good hospital to treat these complicated diseases. Some of the miners do have a good physician; I believe he is here today to testify on their behalf, but many do not have anyone.

I want to thank you for your responsiveness on this matter. It has been refreshing to have supported a candidate that is really concerned and will take the time to hear these problems.

We are willing to work with you and your staff to support your efforts. Many of us can't write, but we will still do what we can.

I also wanted to thank your staff for their cooperation in keeping us informed. It shows that you are concerned about us.

Thank you again for your time. Please feel free to call upon me or members of my community if there is anything we can do to assist you.

Senator DOMENICI. Carl, we welcome you.

Who is going to interpret for Carl? Harry?

Mr. TOME. I guess I am elected again.

STATEMENT OF CARL THOMAS, RED VALLEY, N. MEX.

[Mr. Thomas' statement, read by Harry Tome, follows:]

Senator, I would like to tell you about my experiences. I have been working in the mines since 1957, to 1969. At that time, I was working in the mines and during that time I had a very sad experience. There were no safety measures being exercised in the mine. There was no ventilation. In 1969, I became ill. I have a problem with my throat, with my lungs. My breathing became very difficult. I was told by the doctor that I was sick and this was as a result of working in the mines. This is what I know.

At the time, I didn't work with the rest of the miners. Most of us, I would say all of us, didn't smoke. We never did use cigarettes at the time. Most of those workers that I was with at the time have passed away. I worked in this certain area and I am the only one that still exists. I still suffer from this pain that I have now.

One other thing, I became aware of a recent survey that was made of a house, which is built of stone. that was mined from the uranium mine. I built this house and I didn't know that it contained high radiation, uranium. I still live in that house. I was told that it is very dangerous to live in this stone house. I don't have any money. I don't work. There is no way that I could get money to build me a house that does not contain radiation from uranium.

I have approached the Navajo Tribe, the State, the Government, to see if they could help me, to assist me in a way so that I could move out of this house.

This is one of the things that I would like to bring to your attention, Senator.

Senator DOMENICI. Harry, ask him these questions.

Carl, do you understand English?

Mr. THOMAS. A little. Not very much.

Senator DOMENICI. See if you can answer my questions. You can answer them in Navajo.

How old are you?

Mr. THOMAS. 57 years old.

Senator DOMENICI. When did you last work in the mines?

Mr. THOMAS. 1969.

Senator DOMENICI. How many years did you work in the mines?

Mr. THOMAS. I started in 1957 to 1969. No, 1947 to 1969.

Senator DOMENICI. Where were the mines that you worked in; what community; where were they?

Mr. THOMAS. Cove, Ariz.

Senator DOMENICI. How many different mines did you work in?

Mr. THOMAS. Vanadium Corp. of America, Kerr-McGee, and Climax.

Senator DOMENICI. How big were these mines; were there a lot of men working where you were or were they small mines?

Mr. THOMAS. Big mines.

Senator DOMENICI. 300, 400 people?

Mr. THOMAS. Yes.

Senator DOMENICI. How many people were working in the mine underground with you?

Mr. THOMAS. About 40, some they just laid off. We finished the job with five men.

Senator DOMENICI. What did the doctor tell you was wrong with you and who is your doctor?

Mr. THOMAS. Monticello, Utah, they sent my X-ray to Grand Junction, and said my lung was full of smoke.

Senator DOMENICI. But you don't smoke cigarettes?

Mr. THOMAS. No.

Senator DOMENICI. Have you ever smoked during these years you worked in the mine?

Mr. THOMAS. No.

Senator DOMENICI. Do you know the names of any others—oh, you were going to tell me the name of the doctor; do you remember?

Mr. THOMAS. No.

Senator DOMENICI. And he is in Grand Junction?

Mr. THOMAS. Grand Junction, yes. My doctor now is in Shiprock.

Senator DOMENICI. Were you treated in the Indian hospital or by Indian health doctors at any time?

Mr. THOMAS. Yes.

Senator DOMENICI. Where would they have treated you, what places?

Mr. THOMAS. Shiprock.

Senator DOMENICI. When would you have been at Shiprock last?

Mr. THOMAS. Last month.

Senator DOMENICI. Did the doctor there tell you you had smoke in your lungs?

Mr. THOMAS. He told me I had lung disease.

Senator DOMENICI. He is at Shiprock?

Mr. THOMAS. Yes, Shiprock.

Senator DOMENICI. You said that some other men that worked with you there had died. Do you have any names, can you give us any of their names?

Mr. THOMAS. Clifford Yazzie, Jim Tom Garnenez, Harry Hosteren, Peter Yazzie, Sr., Clyde Dick. The one still living is James Yazzie, Kee Begay, and me.

Senator DOMENICI. Those men that have died, did they work in the same mines that you have already told us about?

Mr. THOMAS. Yes.

Senator DOMENICI. Did a group of you work together at each of these mines? Did a group of you stay together for a number of years?

Mr. THOMAS. No; we worked in Cove, Ariz., these people.

Senator DOMENICI. How many years did those that you named work with you?

Mr. THOMAS. About 11.

Senator DOMENICI. OK, Harry, can we go to the next witness, please.

Mr. TOME. Pearl Nakai?

Senator DOMENICI. Pearl Nakai—with her daughter interpreting—correct?

Mr. TOME. Yes.

Senator DOMENICI. Go ahead, Pearl.

STATEMENT OF PEARL NAKAI, RED VALLEY, N. MEX.

[Mrs. Nakai's statement, read by her daughter, Marie Harvey, follows:

Mrs. HARVEY. My name is Marie Harvey and this is my mother, Pearl Nikai. My father's name was John Smith Nakai. He has been a miner for 23 years; or was. He worked in the States of Arizona, Colorado, and Utah. At the time that he was working, we were never told about the conditions or were we cautioned about what was going to happen to him. They drank the water that seeped out of the walls of the mines. We lived about 50 feet away from the dumps of the ore. As kids, we were never told not to go here and there, or play here and there. Now my father's clothing, he took it off, he hung it in the house. We lived in a one-room house there. Nobody told us about the dangers of the uranium ore until it was 1974, and we found out he had cancer of the stomach and the liver. There was some in his lungs, too. From that day on, he had an operation and that it was only 6 weeks for him to live after he was operated on. We found out he did have cancer. He had worked with 30 men and most of them have died; some of the widows and children are sitting in the back today. They will testify also, if they could, about the conditions in the mines.

My dad was 58 years old. There are six kids in the family, ranging from about 29 to 17 years old. My older brothers and sisters can't really support themselves because they have to support my mom and my younger sister. There won't be anything that will be helping my mom after the social security stops and my sister gets out of school and goes on her own.

That is why I would like to get some kind of help and some kind of compensation back from the Federal Government. We have suffered so much since my father became unemployed and unable to work. He was disabled from working in the mines. Some of the kids planned on going to school, but we couldn't because there were problems back home, and we had to come home. My father was still working on the house, but he never finished that. We had to do that and that is why we didn't finish our education so we could get some kind of a better paying job to support our own families and my mother and help some of the relatives that are around.

Those are the kinds of problems we have since my father died. We would really appreciate all the help that you, Senator Domenici, and all the other leaders that are present here today that are trying to help.

I thank you greatly for it.

Senator DOMENICI. Can I ask you a few questions? You don't have to ask your mother if you know the answers. We assume she would give the same answers.

How old is your mother?

Mrs. HARVEY. My mother is about 48 years old.

Senator DOMENICI. Where was your father treated and operated on, what hospital?

Mrs. HARVEY. It was the San Juan Regional Medical Center in Farmington.

Senator DOMENICI. That is not the Indian hospital?

Mrs. HARVEY. No.

Senator DOMENICI. Do you remember the name of the doctor?

Mrs. HARVEY. A Dr. Todd and a Dr. Kendall.

Senator DOMENICI. Did your father smoke?

Mrs. HARVEY. No; he never used any kind of stuff like that, no.

Senator DOMENICI. How old was your father when he died?

Mrs. HARVEY. Fifty-eight.

Senator DOMENICI. Did you tell us that he died in 1974?

Mrs. HARVEY. December 4, 1974.

Senator DOMENICI. Do you remember, or does your mother remember, where or what different places he worked, and did he only work in uranium mines, or were there other kinds of mines?

Mrs. HARVEY. Uranium mines were the only ones he worked in. He worked at the coal mine he mentioned and the Oak Springs mine there in Arizona. Then there was a mine in Slick Rock, Colo.; LaSalle, Utah, and there was another one just north of Dove Creek, Colo.

Senator DOMENICI. How old are you?

Mrs. HARVEY. I am 24 years old.

Senator DOMENICI. How much education have you had?

Mrs. HARVEY. I just went to freshman year in college, that is all. In 1974 I had reenrolled and everything to go back to the University of New Mexico, Albuquerque, but my father wasn't able and he got sick so I had to leave school to support the family.

Senator DOMENICI. Do you work now?

Mrs. HARVEY. Yes; I do.

Senator DOMENICI. What do you do?

Mrs. HARVEY. I work for the Department of Human Services, Farmington.

Senator DOMENICI. The city of Farmington?

Mrs. HARVEY. No; the State of New Mexico.

Senator DOMENICI. How long have you been doing that?

Mrs. HARVEY. With that department, I have been with that department for 1 year, 1 year and 2 months. I have been working since I got out of college.

Senator DOMENICI. Do you remember any of your father's friends that worked in the mines with him? You, yourself, do you remember any of them by name?

Mrs. HARVEY. Yes; I know some of them.

Senator DOMENICI. Do you remember any of them dying also?

Mrs. HARVEY. Yes; I do. I worked in the hospital at Shiprock for about 2 years from 1974 until about 1976. In that time, I saw about five of them go into the hospital and I knew them and they were my father's friends and they died there.

Senator DOMENICI. Did they die of cancer?

Mrs. HARVEY. Yes.

Senator DOMENICI. Was it cancer of the lung for most of the men that you knew or was it some other place?

Mrs. HARVEY. It was in the lung or in the throat.

Senator DOMENICI. Your mother stated when you were interpreting for her that your father had cancer of the stomach and liver, no, the throat and liver.

Mrs. HARVEY. The lung, liver, and stomach.

Senator DOMENICI. OK. Thank you very much.

Harry, let's go.

Mr. TOME. Jessie Harrison?

STATEMENT OF JESSIE HARRISON, SHIPROCK, N. MEX.

Mrs. HARRISON. I hope you understand what I want to say.

My name is Jessie, Jessie Harrison.

I don't have much English, just a little bit. I guess I will have to try it.

Senator DOMENICI. You are doing fine.

Mrs. HARRISON. I just need help. I don't go to school. I just have 1 year of schooling at Fort Wingate when I was small.

I am a widow too. It is hard on us to talk about it. Sometimes I don't want to talk about that. It is new to me. It is hard on me to think about it. It is the same for me as she said. I am a widow. I have six kids, three boys and three girls. It is hard on you to help the kids without your husband. I know that he was very, very sick and he died. We didn't even know this thing about the mines. He was working in the mines 19 or 20 years. He was working over at Kerri-McGee at Cove, Ariz., about 16 years. Then we left Vanadium Corp. of America, and he worked there 3 years at Cove, Mesa. We moved to Colorado, Gateway, Colo. We were there about 5 years. I don't really remember.

Finally, he got a cold in 1969, almost the end of 1968, December, he got a real bad cold. He went to the hospital in Farmington and he got some medicine like cough syrup and shots. He had a 2-week vacation. He was around the house and brings in coal and wood. We had a big snow and it was cold. He went back to work in Colorado again. He came back in 2 weeks and we stayed over at Shiprock. He still had a cold. He said he was no better. We didn't even think about the cancer. Finally, he said he would be over in January and he would go ahead and finish the job. Then he went back to Colorado again. This was 1969, January 28, when he finished his job and he moved back to New Mexico. He got sick that night and he said he smelled something in his mouth and I didn't smell it.

I said we would go to the hospital and see how he is and get an X-ray. We went there and he got an X-ray and we stayed over to the afternoon. At 2:30, they finally find out. Dr. McKenzie was there. He said it was something important. He said it was on his lung. Then we went into the small room and saw what he had. The X-ray was shown to us. The right side of his lung is all black and all through his throat. We just got a shock. They don't say anything about it happening to him. My husband was a strong man. He didn't look sick. He was a big man and strong. Right away, on February 3, we went to the hospital. The doctor told him to go home with his kids. They checked him over at Grand Junction, all the same stuff. He has got to check every year when he is working in mines, saliva and stuff like that is what he told me. These things don't even show up. We were so surprised about this thing.

My husband went for surgery in Albuquerque. He got an operation February 15. He had all his lung taken out on the right side. We just don't know what to do. I had to start working, do this, do that. I have a teenager, 18 now, kids at that time. I have three small kids. It is hard. The 18-year-old wants this, do that, go with the kids, go out. I just try to talk to my kids to attend the school. Please, I said.

I tried to help my kids and I tried to help myself. I chopped the wood and hauled in the wood, hauled in the water, everything. I have no running water in my house. I was really surprised.

He came back from the hospital. The doctor told us if he passed 8 months, he was going to be all right. If not, he is not going to be getting well. If he goes past 4 or 5 months, he is going to be all right. We just prayed and prayed about that. It was summer and August, almost the end of August he started in bleeding again from his mouth. We just go down, everybody go down. He tried to eat, but he just throw up. I just took care of him all the time. I didn't even think about me. I don't eat good and I don't feel better. I don't eat good. I don't buy anything. I am just working.

Senator DOMENICI. Jessie, can you help me and answer some questions?

He died soon thereafter. When did he die?

Mrs. HARRISON. He died in 1971, January 11, Shiprock Hospital.

Senator DOMENICI. And where was he operated on?

Mrs. HARRISON. Albuquerque, McKinley Hospital.

Senator DOMENICI. Who was the doctor who did the operation, do you remember?

Mrs. HARRISON. I don't know. I only know about his doctors at Shiprock, Dr. Husen and Dr. McKenzie.

Senator DOMENICI. How many children did you say you had?

Mrs. HARRISON. Six.

Senator DOMENICI. How old are they?

Mrs. HARRISON. There are three of them that got married. Three are still in school.

Senator DOMENICI. How long did he work in uranium mining?

Mrs. HARRISON. About 20 years.

Senator DOMENICI. Did he smoke cigarettes?

Mrs. HARRISON. No.

Senator DOMENICI. You don't remember any time in those years that he ever smoked?

Mrs. HARRISON. No.

Senator DOMENICI. Unless you have something very important, I think I know enough about what happened.

I would like to have the other lady testify.

Is that all right with you? Are you finished telling me the main parts of your story?

Mrs. HARRISON. Yes.

Senator DOMENICI. I thank you. I appreciate your testimony very much.

Mr. TOME. Mae John is next.

STATEMENT OF MAE JOHN, SHIPROCK, N. MEX.

[Mrs. John's statement, read by Lena Dick, follows:]

Mrs. JOHN. Hello to everybody. I am Mae John. My husband deceased 10 years ago in 1970 in the hospital in Shiprock.

On behalf of her, besides me, my father used to work in that mine too. Her husband, my dad, they know each other very well.

Senator DOMENICI. Wait a minute. We want to make sure we have got this testimony separated. You will want to state your name in the record so we don't get confused. Tell us your name.

Mrs. DICK. My name is Lena Dick.

Senator DOMENICI. When you refer to her, you are talking about what Mae John said. Then you are speaking for yourself also?

Mrs. DICK. Yes. Her husband worked there for 19 years in the mines, 14 years in Cove and 5 years in Colorado and Utah. Mae has nine children. Some of her brothers worked in the mines with her husband.

Senator DOMENICI. Some of her brothers, you say?

Mrs. DICK. Yes, she stated some of her brothers worked in the mines with her husband. Two died. These were Billy Johnson and Chester Johnson. Only Cato Johnson is still living. She wants help for herself and her children. She is not educated. She can't drive. She does all of the water hauling, wood, and coal hauling herself. She wanted her

kids to go back to school, but her children are just tending to her, helping her out. She said some of them were in school, but are not willing to go back because of the situation.

Senator DOMENICI. Let me ask you a few questions. What was her husband's full name and how old was he when he died?

Mrs. DICK. Her husband's name is Lee Nelson John. He was 43 when he died.

Senator DOMENICI. And he died on what day?

Mrs. DICK. January 19, 1970.

Senator DOMENICI. What hospital was he treated in?

Mrs. DICK. Shiprock Indian PHS Hospital.

Senator DOMENICI. Was he operated on?

Mrs. DICK. Yes, he had an operation.

Senator DOMENICI. His lungs?

Mrs. DICK. Yes; they operated on his lungs.

Senator DOMENICI. How long before his death did they operate?

Mrs. DICK. Since the operation, he only lived about 6 months.

Senator DOMENICI. So about 6 months before the date of death he was operated on at the hospital?

Mrs. DICK. Yes. She also stated it would be appreciated if they could help her in some way because she don't live with electricity and running water. She is having a lot of problems financially, and she says she is both a mother and a father to her kids. We need support and help from you.

Senator DOMENICI. How old is she now?

Mrs. DICK. She is 44 years old.

Senator DOMENICI. She is 44 now?

Mrs. DICK. Yes.

Senator DOMENICI. She was 33 when he died and he was 43, 10 years difference?

Mrs. DICK. She doesn't remember. She doesn't remember the birth date either.

Senator DOMENICI. Ask her if she smokes cigarettes?

Mrs. DICK. She doesn't use tobacco.

Senator DOMENICI. Did he smoke?

Mrs. DICK. He didn't smoke either.

Senator DOMENICI. Go ahead.

Mrs. DICK. That is all she stated, all she gave to me. We would be thankful if people would help us and support us.

Senator DOMENICI. Thank you. We appreciate your helping her.

We have one witness left, don't we Harry?

Mr. TOME. Harris Charley?

STATEMENT OF HARRIS CHARLEY, SHIPROCK, N. MEX.

Mr. CHARLEY. My name is Harris Charley, Shiprock, N. Mex., age of 58, eight children and a wife, two still under 18 and in school, one handicapped, age 20.

I don't really have enough education. I only go to the sixth grade. U.S. Senator, we need your support for the Navajo people. Many Navajo miner workers have passed away. Thank you for giving me a chance to testify about uranium problems.

In 1940, I worked in different places. I have worked in uranium mines for 15 years and 6 months for Vanadium Corp of America and

Fanderson Mining in Colorado. Today, I have lung disease from the uranium. Short breathing, joint pain every day and night. I can't hardly sleep well. I have to kneel down and start praying to the Lord.

In those days, miners were not taken good care of. No air. Old mines caving in. No safety was there. We were just kicked around treated like dogs. Using the water to drink in the mines, inside the mines. Lots of hard labor, 8 to 10 hours, day and night. The company only wants more uranium to be shipped out and more money. Doesn't really care for human beings. The mine inspector was there around 1955 and we started having air to reach into mines. I think this is very dangerous for a human being. We don't like our grown children to get into this kind of disease. I am not under any kind of medication. The doctor has told me just to take care of yourself, that is the only way, then, you are going to live long. I kept on praying to the Lord.

Again, thank you.

Senator DOMENICI. What doctor treated you, Harris?

Mr. CHARLEY. I have two copies here. They give me operation in Albuquerque, N. Mex., at medical center, I guess it was.

Senator DOMENICI. When was that?

Mr. CHARLEY. Seven years ago.

Senator DOMENICI. What did they tell you that you had; do you remember?

Mr. CHARLEY. They showed me a picture, my X-ray. My lung was black and all spotted. It is still the same way right now.

Senator DOMENICI. You are not getting any worse?

Mr. CHARLEY. No. It stays the same.

Senator DOMENICI. Do you see the doctor regularly?

Mr. CHARLEY. No, not really. It has been about 1 year ago.

Senator DOMENICI. And where was that?

Mr. CHARLEY. Shiprock PHS.

Senator DOMENICI. Do you remember the name of the doctor there?

Mr. CHARLEY. I think Dr. Husen was around. He was one of my doctors.

Senator DOMENICI. Thank you very much, Harris.

Harry, did Mr. Tso want to testify or was he just here with you?

Mr. TOME. He has about 2 or 3 minutes.

Senator DOMENICI. I would very much appreciate hearing from him. I would also ask if he could make it as brief as possible. We do have two more panels.

STATEMENT OF HAROLD W. TSO, WINDOW ROCK, ARIZ., DIRECTOR, ENVIRONMENTAL PROTECTION COMMISSION, THE NAVAJO NATION

Mr. Tso. Senator Domenici, we thank you for coming and we thank your staff for assisting you. We hope that the remarks and comments will assist you in your pursuit of getting this bill passed.

For your information, our office has been looking at uranium mines for at least 1½ years now. We have identified nine areas of the Navajo Reservation that have been impacted with uranium mining in the early days from roughly the 1940's to the 1950's. These areas are all over the reservation.

There are two problems that have resulted from these investigations that I think your bill should address, in addition to what it has already addressed.

In terms of housing, back in June, a CBS television crew came to Red Valley in response to an article by Molly Ivans in the New York Times. They came out and interviewed some of these people that you have heard today and presented a short 10-minute documentary on CBS "Sunday Morning News," July 17, 1979. While the film crew was interviewing the families, the miner and his family, one of my technicians put his Geiger counter on the house that these people were living in and it rang rather loudly with radioactivity. We took readings, did a real quick calculation. Senator, we estimated that this particular house contained more than 100 rems of radioactivity in it, or gamma-emitting radioactivity. As you well know, 5 rems per year is the maximum permissible exposure level.

We saw a second house within 100 yards of the original house and looked at it and it had roughly the same reading. Upon investigation, we would find that these houses had been constructed with ore that could be classified as waste ore and normally this is ore that is not used by the industry or marketed and it is discarded. This particular rock was conducive to home construction. It was roughly 4 to 5 inches in thickness and it broke off in just the right chunks so you could construct a house.

This led to an interesting facet of the problem. Everyone is interested in the uranium miner and the exposure in the mine, but suppose, Senator, that that miner had to go home and live in a house that contained at least this much radioactivity. So, Senator, for your information, we would present this particular fact.

Senator DOMENICI. I wonder if you have verified those readings and if there are others like them around?

Mr. Tso. We would dearly love to find out to what extent this problem exists in the mining area, Senator, but we have no funds to do this. We proposed to do a project where our staff would do a radiological survey and our health staff would do the health impact analysis identifying the impacted population. Because of lack of funds, we are not able to do this at this time.

Senator DOMENICI. Do we want to get some Federal people to come over and just verify what you have told us and see if there are any additional ones in the nine areas? If they contact you, will you help them get out there and do that?

Mr. Tso. Yes, sir.

Senator DOMENICI. We will try and do that very quickly.

Mr. Tso. The second aspect, Senator, is in the Navajo Nation there are four uranium mills that are now abandoned. These mills, as well as 17 other mills, in the Rocky Mountain West, are to be addressed by Public Law 95-604, the well-known Mill Tailings Act of 1978. An aspect of the bill that may not have been addressed, and perhaps this group should consider also, is that in the course of tearing down the mill building at Shiprock, N. Mex., we stumbled on, very literally stumbled on, an estimated \$100,000 dollars' worth of 25 percent U_3O_8 on the roof of this mill building. In those days, the U.S. Atomic Energy Commission had responsibility to monitor and to check the milling of these particular processes. To find this much 25 percent U_3O_8 was rather shocking. This leads to the problem I would like to have you consider. Suppose that these millworkers did not know that they were being exposed to U_3O_8 dust in the mill vicinity or suppose that in the mill itself these workers were not aware they were being exposed to

ambient concentrations of U_3O_8 . I think your staff should look into this kind of thing. Again, it relates to the uranium industry.

One other thought, Senator. As you well know, the Navajo Nation is rather extensive, covering a three-State area, something in excess of 14 million acres. These medical centers would be rather difficult to get to from wherever the miners' families would be located. The Navajo Nation, Dr. Gottlieb is here, and he is on this medical panel. I think he is the doctor for most of these people that have come today. At Shiprock, there is the medical center looking into the impacts of uranium on health. I would suggest, Senator, that perhaps since this facility at Shiprock seems to be well established, and the staff that has been looking into the problem, this might be a good place at this time for a medical center for the Navajo Nation.

In conjunction with that, there was a medical center being established at Kayenta, Ariz. I believe it was called the Kayenta cancer research project. Perhaps in view of the distances that local medical centers be considered by your staff to negate the long distances that are required now. Thank you.

Senator DOMENICI. Thank you very much.

Harry, we are most appreciative of this panel.

Mr. TOME. Thank you. I want you to meet the rest of the Navajos that came because they are afflicted. Some are widows. They are all here to hear what is going to be said. They came, they are very interested.

Senator DOMENICI. Thank you very much. Thank you for coming. We know it is inconvenient. We are going to take another 5-minute recess.

[There followed a short recess.]

Senator DOMENICI. Do we have three local officials here?

Clovis, we're glad to have you. If you will tell us for the record your name and your elected office and tell us what you would like us to hear.

PANEL OF LOCAL OFFICIALS

STATEMENT OF CLOVIS BACA, MILAN, N. MEX., CHAIRMAN, VALENCIA COUNTY COMMISSION

Mr. BACA. Glad to be here, Senator Domenici. I am pleased to make this presentation. I will keep my remarks here today very brief.

Of course, I am not an authority on the medical implications due to the mining of uranium. It has been my observation that there are certain risks in any type of endeavor we pursue—be it mining or any other venture.

During the Vietnam war, there was a debate in our country whether we could have both guns and butter. If my memory serves me correct, we had both, but we still lost the war. With respect to the mining of uranium, I believe we can reap the economic benefits and still maintain a clean environment, and more important, still maintain the safety standards that are needed to protect the miners' health who do the hard work. It is unfortunate that the early miners were victims of unknown implications that would surface 30 years later. I am sure that through medical research and technology, conditions are much safer today. We always learn from past mistakes or at least we should.

I believe the Federal Government should compensate the victims of the past and/or their families.

I believe we should be vigilant of what the plight of the miners of today will be 30 or 40 years from now. Let us not put the inflated

dollar ahead of our grandchildren's rights to exist in a clean environment, with unpolluted air, water, plant, and animal life as we know it today. I am afraid money will not be able to buy all these things once we let them get away from us. Recent history should have taught us that our money has not been able to buy friends in foreign countries.

Let us back Senator Domenici and our other congressional Members to pass appropriate legislation to try to correct the wrongs of yesterday. Tomorrow is today.

Thank you for the opportunity to express my unprofessional remarks.

Senator DOMENICI. Thank you very much.

Those were excellent, unprofessional remarks.

Senator Fidel, delighted to have you. I'm glad that you're feeling better, and I personally appreciate your waiting all afternoon to come and share your thoughts with us.

STATEMENT OF HON. JOSEPH A. FIDEL, GRANTS, N. MEX., NEW MEXICO STATE SENATOR

Mr. FIDEL. Thank you very much, Senator.

I am happy today to be here because I think we are, with your proposed legislation, finally getting somewhere with our problems that have been brought to our attention as a Nation.

As you well know, Senator, Grants, western Valencia County, McKinley County, and other parts of New Mexico, more particularly the northwest quadrant, is in the critical situation as to the supplying of the energy needs for our Nation.

If you will recall, just a few years ago, our community had a total population of about 1,800 people. We had an industry here that consisted of farming, consisted of ranching, some logging. We were known at one time as the uranium capital of the United States. We probably boasted being the uranium—I'm sorry, the carrot capital of the world.

Senator DOMENICI. Right.

Mr. FIDEL. While we were producing carrots, and while we were based on an economy that was seasonal, along came the needs that we had to have for our country. In came the discovery of uranium. We're in an area that covers approximately 100 miles roughly east to west, 30 or 40 miles in width, and continually discovering more and more reserves of uranium, known as the Grants mineral belt.

Let me tell you first, to qualify my position, I am not a geologist. I am not a physician. I am an ordinary businessman that has lived in this end of Valencia County for all of his life.

I was elected to this position by the people of my district in 1972; and in these 7 years, I have attempted to respond to the citizens of my district.

Our people have faced up to their responsibilities in the growth of our industry very responsibly. I would like to mention the fact that in the growth of our community we had many problems due to the impact. The citizens of our area never once shirked their responsibilities. When they were asked to pass bond issues, sales tax issues in the way of self-help measures, for funding of our educational facilities, for funding of our needs for our municipalities, the citizens have always responded.

The State of Mexico has acted very responsibly in enacting legislation to return to the areas that have been impacted with proper type of legislation with the least amount of redtape, in funneling the dollars where the dollars are needed, to take care of sanitation, to take care

of water facilities, to take care of educational facilities, and to take care of the basic necessities for our citizens well-being.

The reason I am coming around to our situation from that particular scope is the fact that we finally, Senator, with your proposed legislation, with its final draft, whenever it gets to that point, hopefully will address itself to the very critical situation that we are facing.

As has been mentioned, in anything that we do to keep America strong and to keep America self-sufficient, we are going to take risks, and every one of these individuals that has been or is presently connected with any of these industries, they are aware of these risks. The improvements have been many; but prior to these improvements, we only hope, Senator, that through your legislation we can accomplish what you are trying to accomplish, and I hope that once we do have a law, that it is enacted; and after it is signed by the President, I hope that we can make this law work with a very minimum amount of redtape, so that these people that are in need do not have to wait another 20 or 25 years so that their great-grandchildren may be the beneficiaries of the problems that we have at hand.

I only want to say that as long as we are addressing ourselves in this particular manner, we have spent tons and tons of money for many, many things; and it is really a disaster that while we were producing the weapons for our defense, while we were producing all of the sophisticated space vehicles and what have you, and everything as necessary for us here and for our country, it is really a sad situation that we have faced ourselves with in trying to solve the problem at hand, Senator.

I appreciate your efforts tremendously. I want you to know one thing. In my own humble way, from my own district, if there's any way possible that we are able to assist you in your legislative endeavors, we certainly want to do so.

This is of great concern to people in my district, and I personally have attempted in my own small way to assist the citizens that are affected. It isn't much that I have been able to do, Senator, but at least I have hoped all along that we were always able to get the people to the right places, at least that much, so that they would at least have some type of attention.

I am very confident that we have the cooperation, both of industry—we have the cooperation of labor, and we have, I hope, the cooperation of government, with a very, very minimum amount—and I know that's a tall order, Senator, and I know what you're up against—but if we can cut the redtape and get this legislation taken care of, our situation will be at least that much further ahead, and, hopefully, we can lick this problem and take care of the deficiencies of the past.

Thank you for inviting me to be here, and I appreciate your attention. Thank you, Senator.

Senator DOMENICI. Thank you very much, Joe.

Charlotte Cotton, a member of the Grants City Council, we're delighted to have you.

STATEMENT OF CHARLOTTE COTTON, MEMBER, GRANTS, N. MEX., CITY COUNCIL

Ms. COTTON. Yes; I'm glad to be here, and welcome to our city of Grants.

Most of the people that have talked today I have been in contact with. I think it was a mass confusion years ago that nobody really knew too much about anything.

I remember when we first came here, I think the town was supposed to last 10 years. I've been here 20. It is going on, and on, and on.

I just wanted to tell you of a couple cases that I know, especially one, of a fellow that came here.

He came here in 1957. He worked until 1962, and he died. I am talking about Mr. Putnam. At the time that he contacted the cancer, he was 40, and he died at the age of 41. He passed away in the VA Hospital. He worked for a company that was here at one time. I think it was, just like I say, confusion on the part of the companies, of the Federal Government, of the people, that they didn't know where to go; but as long as we're talking about distress cases, I wanted to bring this up because the company paid no insurance to this fellow. The widow had to pay all of the hospital bills. He had no compensation. She did receive two social security checks; and then after he died, she had to return the checks. She also lost a son. He did die from cancer, but not from the mines. Right now the only money that she receives is a small VA check. She receives \$237 a month, pays rent on a house and gets \$11 a month food stamps, and I think it's terrible.

Another one, a good friend of mine, was married to a miner for about 14 or more years, and, unfortunately they got a divorce. He remarried and adopted two little children. He then contacted cancer, and when he died, his new bride got all the money, and the other woman didn't get anything, and she died of a broken heart, and those are true cases.

I don't really think it's going to cost us a lot of money, because a lot of these miners that worked here during all these years that have died of cancer, their children have most all grown up and they're self-supporting, and a lot of the women have remarried, so I don't think that we are talking a lot of money to reimburse some of these children. I think it's a bill that needed to be done a long time ago; but through all the confusion and not knowing anything about anything, it was just an oversight on everybody's part.

Thank you.

Senator DOMENICI. I tell you, it might be an oversight, but it's going to be hard to get one drawn that will work. It's a lot more complicated than we thought when we started, but we appreciate your support and your excellent statements.

I personally want to say to you, Senator, I hope you're feeling well. It's always a real pleasure to be with you.

One thing I can say about you and your efforts on behalf of your people here, and I hope you can say the same about me, when we work together, it has nothing whatsoever to do with partisan politics, and I compliment you for helping me in the past, and I'm most appreciative of it.

Thank you so much.

Mr. FIDEL. Thank you, Senator.

Ms. COTTON. I'm glad to see so many people staying. It's not like a city council meeting. As soon as their little problems are over, then they all get up and we're sitting there by ourselves. So I want to thank the audience for staying.

Senator DOMENICI. Well, I went through that, too, at city hall. At 2 in the morning, there's nobody there, is there?

The next panel is not going to go on right now. We're not going to take a lot of time, but we must go ahead with Langan Swent. He has an airplane to catch, so I have agreed that if he will make his testimony brief, we will go with him right now.

Thank you so much for being here.

He is accompanied by William "Bill" Darmitzel of the New Mexico Mining Association.

PANEL OF COMPANY REPRESENTATIVES

STATEMENT OF LANGAN W. SWENT, VICE PRESIDENT OF ENGINEERING, HOMESTAKE MINING CO., SAN FRANCISCO, CALIF., ACCOMPANIED BY WILLIAM DARMITZEL, EXECUTIVE DIRECTOR, NEW MEXICO MINING ASSOCIATION, SANTA FE, N. MEX.

Mr. SWENT. Senator, my name is Langan W. Swent. I'm vice president of engineering of Homestake Mining Co., and I am appearing today on behalf of the American Mining Congress, a national trade association composed of companies that produce most of America's metal, coal, and industrial and agricultural minerals.

We appreciate the opportunity to present our comments.

Senator DOMENICI. Before you go ahead with your statement, let me state that although you do not live with us now, that your record of participation and activity and living in New Mexico is indeed a lengthy and auspicious one, and we are glad that you were chosen to represent the industry. This isn't the first time you have been involved in helping New Mexico. Governor Burroughs, back in 1960, as I understand it, appointed you on a special committee here in New Mexico to address issues of the type we're speaking of today, generally in the area of safety. You have been involved as a partner and general manager in various uranium operations here, and we're delighted that you came from far away to testify today.

Mr. SWENT. Thank you, Senator.

With me is Bill Darmitzel of the New Mexico Mining Association. I'll let him introduce himself.

Mr. DARMITZEL. Senator, I'm William Darmitzel. I'm the executive director of the New Mexico Mining Association.

I would like to say that the uranium committee of the New Mexico Mining Association endorses and supports the statement presented by Mr. Swent.

Thank you.

Mr. SWENT. We wholeheartedly support the concept that employees or their dependents be compensated for disabilities or deaths incurred from hazards encountered in the course of, or as a result of, their employment. We believe that this can be done effectively without disturbing the general framework of existing State workmen's compensation statutes, and we support efforts to do so.

The American Mining Congress is, in general, opposed to the setting of Federal standards for the amount and duration of benefits to be paid under State workmen's compensation laws.

Accordingly, we do not endorse any legislative proposals which would impinge upon State responsibility or State prerogatives in this field.

We regard as unique, however, the situation in which some uranium miners were exposed to radiation hazards in the 1948-63 period. In early April 1948, the Atomic Energy Commission formally embarked on its guaranteed uranium purchase program under Government-established prices, with bonuses and incentives for early production. The Atomic Energy Commission did not require operators of uranium mines to take any special precautions to provide uranium miners protection from excessive radiation. Consequently, exposures to radiation in underground uranium mines were excessive in the late 1940's and the 1950's.

Until the early 1960's, the workmen's compensation laws in some of the States in which the underground uranium mining took place did not recognize the lung cancer which some people developed from exposure to excessive radiation as an occupational disease. The long induction-latent period—15 to 20 years on the average—from the time of first exposure to excessive radiation to development of diagnosable lung cancer often meant that statutes of limitations kept some claims from being processed.

The State laws have since been amended and now lung cancer is recognized in States as an occupational illness.

We agree that the Federal Government has a responsibility to provide funds to compensate underground uranium miners who developed lung cancer as a result of excessive radiation exposure during the period that the Federal Government was the sole purchaser of uranium and when State workmen's compensation laws did not recognize lung cancer as an occupational illness.

The Federal responsibility is unique in nature and extent in that the only additional risk that its uranium procurement program imposed on underground uranium miners that was not recognized and covered by State workmen's compensation laws was that some would develop lung cancer from excessive radiation exposure. All other types of diseases and accidents to which uranium miners are exposed occur in other mines also and were recognized by workmen's compensation laws before the procurement program began.

Contrary to what is often alleged, the underground uranium mining industry was neither slow to recognize the hazard of excessive radiation exposure nor to take positive steps to reduce it.

The hazard from radon itself is negligible compared to that from radon daughters. Radon and radon daughters in unconfined air are not considered to be an occupational hazard because the large amount of unconfined air dilutes them to virtually background levels.

Radium is present in all soils in small quantities. Radon is, therefore, constantly being emanated into the Earth's air. Radon and its daughters are present in small concentrations in all unconfined air, and in higher amounts in any confined air, such as in buildings, caves, mines, and this very room.

Exposure to excessive concentrations of radon daughters causes cancers to start in the bronchial tree and in the lungs among a small percentage of individuals.

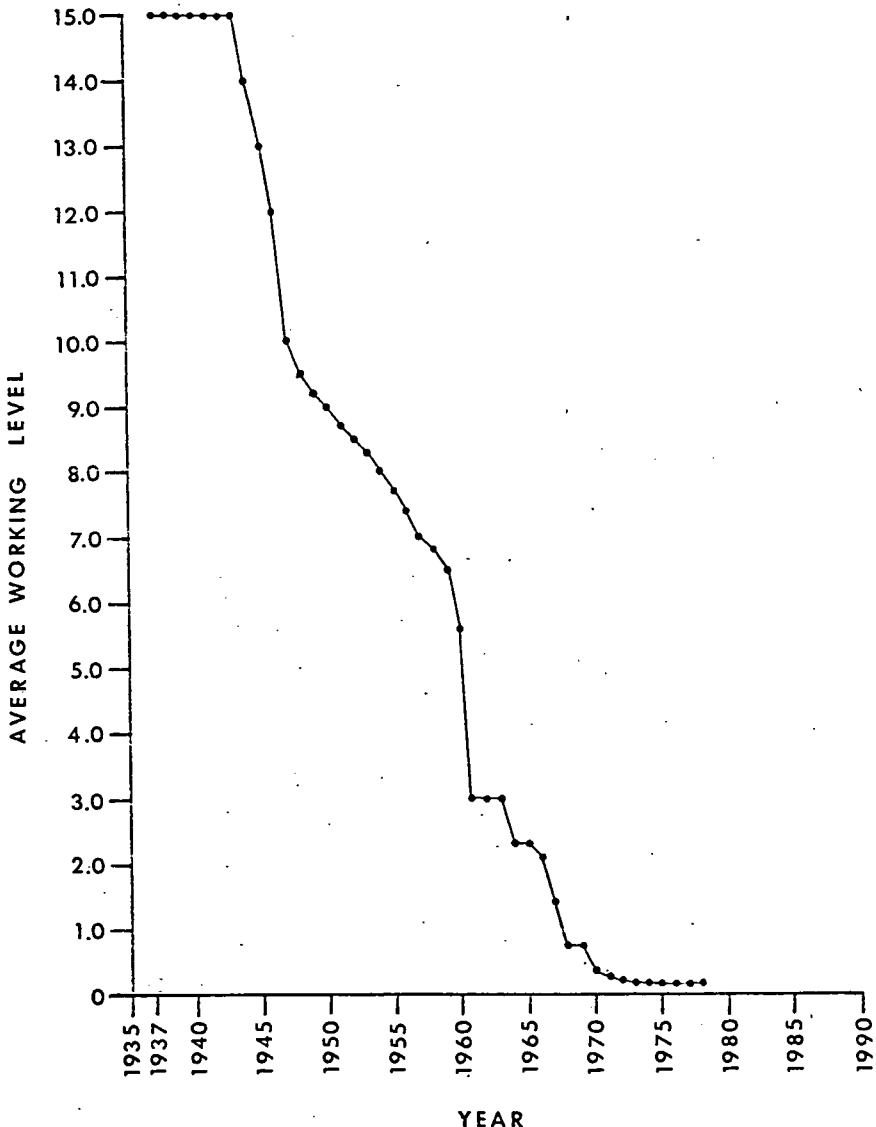
The percentage who develop lung cancer varies with the degree of concentration of radon daughters inhaled, the duration of exposure, whether or not the persons exposed smoke cigarettes, and the degree to which they smoke them. In the U.S. Public Health Service study group of white underground uranium miners, all of whom started uranium mining in 1960 or before, through 1978, about 9 percent of those who smoked cigarettes have developed lung cancer and about 1½ percent of those who did not smoke cigarettes have developed lung cancer. Of the smaller Navajo study group, these figures are about 4 percent and 1¼ percent respectively. These figures compare to 4 percent for the total U.S. population. These figures may change with time; however, especially those of the Navajo group, as additional cases are diagnosed. The Navajo group smoked much less than the white group.

One practical problem encountered in trying to reduce exposures in uranium mines is that many of the people involved, especially in the early years, simply were not impressed sufficiently with the theory that a gas and particles that they could not see or smell might cause

them to develop lung cancer in 20 years. Since many of the protective measures must be done or taken by the individual miners themselves, early progress in this field was slow. Now that statistics are available, and many have known an individual miner who developed lung cancer, this is no longer as serious a problem as it formerly was.

Attached to my statement, I have a figure and a table which shows steady decrease in the average exposures over the years after 1943, and it's a very revealing one and shows the progress that's been made over those close to 30 years.

FIGURE 1.—Average concentrations to which U.S. underground uranium miners were exposed in working levels



Sources: U.S. Public Health Service, U.S. Bureau of Mines, and Atomic Industrial Forum.

TABLE 1.—Average concentrations in working levels to which U.S. underground uranium miners were exposed, by years¹

Year:	Average working level	Year:	Average working level
1937	15.0	1958	6.8
1938	15.0	1959	6.5
1939	15.0	1960	5.6
1940	15.0	1961	3.0
1941	15.0	1962	3.0
1942	15.0	1963	3.0
1943	15.0	1964	2.3
1944	14.0	1965	2.3
1945	13.0	1966	2.1
1946	12.0	1967	1.4
1947	10.0	1968	.75
1948	9.5	1969	.75
1949	9.2	1970	.38
1950	9.0	1971	.31
1951	8.7	1972	.20
1952	8.5	1973	.15
1953	8.3	1974	.16
1954	8.0	1975	.15
1955	7.7	1976	.15
1956	7.4	1977	.14
1957	7.0	1978	.14

¹ Sources: U.S. Public Health Service, U.S. Bureau of Mines, and Atomic Industrial Forum.

In 1968, the American Mining Congress testified in support of Federal responsibility for compensation of lung cancers developed as a result of overexposure in the early years of uranium procurement, but it was not adopted by Congress.

In New Mexico in 1958, the new large operators set up a system of uniform physical examinations and accumulation of data on employee smoking habits in anticipation of a large-scale study being done sometime in the future.

In 1977, the study was initiated to determine the effects of today's low exposures. It is financed by 12 New Mexico operators and to guarantee its scientific reliability and independence has been contracted to the University of New Mexico. Due to the long induction-latent period of lung cancer, however, this study will take many years to produce definitive results.

There are a number of problems in the proposed legislation and what it attempts to do. The legislation is complex and time has not permitted a thorough analysis. The following points, therefore, are not a complete discussion.

The most important matter is that lung cancer is not caused only by alpha radiation exposure. It occurs among the general, nonuranium mining, population due to other factors, the major one being cigarette smoking. There is no positive way to distinguish between occupational and nonoccupational lung cancer. The States have tackled this problem in compensation claims by obtaining expert medical testimony, taking into account the victim's smoking history, alpha radiation exposure history, age, type of cells in the cancer, and the medical expert testimony. The majority of cases are ruled to be occupational, but a significant number are not. Colorado, probably the most liberal State in this field, from July 1958 to July 1979 compensated 74 cases of lung cancer and denied compensation to 46, a 62 to 38-percent split.

Lung cancers due to alpha radiation or to smoking originate in the lung or bronchial tree and in their late stages may spread to other

parts of the body. Likewise, cancers which originate in other parts of the body may in their last stages spread to one or both of the lungs, and the immediate cause of death may be the lung part of the cancer, but such lung cancers are not caused by alpha radiation or smoking. In the case of such an advanced cancer, an autopsy and examination of the involved organs by a pathologist is generally required to determine where the primary site or point of origin of the cancer was.

The legislation does not, but should, require that it be shown that a claimant actually developed primary lung cancer.

The legislation does not require, but should, that it be shown that the individual was exposed to excessive radiation over a substantial period of time.

Alpha radiation exposures in open pit mines and uranium mills are at virtually background levels, and no lung disease due to excess alpha radiation exposure has ever been detected in individuals who have worked solely in those areas. Since the proposed legislation is intended only to cover cases which were not compensable under State laws until these were amended, and there are no past claims or known cases of occupational lung disease among open pit uranium mine or uranium millworkers, there is no need for these locations to be included in the proposed legislation.

Some dust do cause pulmonary fibrosis disease such as silicosis or asbestosis, et cetera, but these diseases are not unique to uranium mines. They occur in other types of mining and in industries other than the mining industry, and so have been recognized by State workmen's compensation laws. There is, therefore, no need to include latent dust-induced diseases in the proposed legislation.

The establishment of Federal minimum standards for compensation will result in a discriminatory system of compensation. In a given State, the Federal standard might award the dependents of an uranium miner who died of occupational lung cancer and is covered by the proposed legislation, more, or less, than the same number and aged dependents of a uranium miner who is covered by the State act would receive. The compensation benefit levels should be left for each State to determine in a uniform manner in accordance with its laws.

Senator DOMENICI. What if they don't do it?

Mr. SWENT. They should have a manner of doing it, and you get into very complex matters. We talked today here of a lady whose husband was compensated a number of years ago, as she testified.

Senator DOMENICI. I understand. What I am saying is you are saying, if I read your statement right, yes, there is a Federal responsibility here, and we recognize it. There was some failure early on to do what they ought to do. Then you proceed to say let's take care of it under the State statutes, and I assume you are saying that you agree that the State statutes, as presently operative, at least in New Mexico and Colorado, don't cover it. So you are saying in order not to be discriminatory, have the Federal resource there, but let the States set the level of compensation. If it doesn't set it now for a 20-year-ago activity, my question is what will we do if they won't set it. It's not presently in the law. We can't order them to, can we?

Mr. SWENT. I would like to finish the statement because I think that's addressed a little further on here.

Senator DOMENICI. OK. I didn't see the statement, so I'm just reading with you.

Mr. SWENT. The proposed legislation does not provide that a claimant is entitled to be paid for medical expenses incurred in diagnosing and treating lung cancer. State workmen's compensation laws generally provide that medical expenses for treating and occupational disease are to be paid. The proposed legislation does not, but should, provide for the reimbursement of a State for a claimant's legal fees and expenses if a claim is established.

It appears that the incidence of lung cancer among uranium miners, particularly the oat cell type, is declining. Due to the long-term induction-latent period involved in the development of lung cancer, it is premature to attempt to determine now the adequacy of the present 4 working-level-months-per-year standard. Many years, 20 to 25 at least, of experience under that standard will be needed to assure that it is fully effective. Only 8 years have passed since the standard went into effect in 1971. The legislation should recognize that if such studies are to be done, long-term contracts and appropriations will be required. The study arranged for between the 12 New Mexico operators and the University of New Mexico is such a long-term study.

We would support a system under which the Federal Government would reimburse a State for its compensation awards, administrative expenses, whether an award is made or denied, and cost of money contingent on: (a) The State repealing or waiving any statute of limitations or nonrecognition of lung cancer as an occupational disease that might otherwise apply; and (b) the State following the normal State procedure to determine whether or not the uranium miner in question actually developed primary lung cancer and whether a specific lung cancer is subject to the proposed legislation originated in one of the miner's lungs and is due to excess radiation exposure.

The matter of radiation exposure evokes an unusual emotional reaction from the American public that is not evoked by nonradiation risks of equal or greater magnitude. We trust that you and your committee will deal with this problem factually in order to best serve the uranium miners, their dependents, the U.S. taxpayer, and the public.

Mr. Chairman, we thank you for this opportunity to present our views.

Now, while on the stand here, I would like to ask one question, Senator. I was invited to testify as a representative of the American Mining Congress. I would like your permission to make some personal remarks which wouldn't be necessarily voiced by the American Mining Congress.

Senator DOMENICI. Sure, sure. Let's let the record show now you're talking as you; is that what you're saying?

Mr. SWENT. Correct, yes.

Senator DOMENICI. All right.

Mr. SWENT. We had panel A this morning. I knew all of those people and many of them who were not on it as a former resident of New Mexico, knew them personally for many years. I was next-door neighbor or back-door neighbor to some of them, so I know their histories.

There was one statement made this morning that particularly bothered me, but I know that it probably wasn't deliberate, but people's memories and times have a way of getting telescoped together.

The statement was made that in 1967, that as late as 1967, that in our safety meetings we did not discuss the hazards of radiation, and this is absolutely incorrect. I left here in 1966, and I know that I made a number of trips from my main office to the mines to attend the

safety meetings and personally stress the importance of this matter because I wasn't satisfied with the progress we were getting in reducing the exposure levels at that time. So I know that it happened long before 1967. We had Duncan Holaday as early as 1958 preaching that there was a problem.

We instigated antismoking lectures for our employees to discourage them from smoking, and we showed them about the tie-in between the two dangers, and then we finally adopted a no-smoking rule in the mines. That was adopted in 1967, long before it became a Federal regulation.

One of the gentlemen here this morning, and this goes back to the problem of the people don't take this seriously when they should. They take it seriously after they get the lung cancer, but it's really difficult to visualize that something that is odorless and invisible is going to hurt you.

One of these gentlemen here—in our annual physicals, we pay for a sputum test. They are given a bottle by the doctor in which to cough up sputum which is then sent to a pathologist, and is a very good method of early detection of lung cancer. It is far earlier detection than X-rays. One of these gentlemen here for the last 4 years has not given us a sputum sample. Even though we would pay for it, we gave him the bottles and all this, yet he hasn't turned them in, and this makes the problem all the more difficult. It's one of education and getting people to realize that it is for their own good and their own benefit, but I do particularly want to clarify the record on the fact that long before 1967 we were working on that problem and giving safety talks and telling people that they had this risk.

Senator DOMENICI. Bill, did you have anything?

Mr. DARMITZEL. Senator, I just wanted to say that on behalf of the New Mexico Mining Association, we have for a long time taken the position that with respect to the production of uranium during that period of time when the Federal Government is the sole purchaser, that the Federal Government had the responsibility for compensation of this type of problem, and we appreciate your interest and concern in this matter. We will certainly be willing to work with you to develop a legislative proposal that will do the best job and fit in with New Mexico.

Thank you.

Senator DOMENICI. I want to thank both of you.

I want to say to you, Mr. Swent, I haven't had a chance to analyze your statement. I heard you give it, and I guess I'm very tired today at this stage of the game, but I don't quite understand you, so I'm going to have to read it carefully. The only thing that I do understand is that you are willing to say that the responsibility for those early years would be the Federal Government's, that you think since it was their baby, so as to speak, they ought to be responsible. Now, once we leave that, I don't understand the rest of it. It would appear to me that when we get to the rest of it that you are really saying, however, be so careful that nobody is going to get anything. I mean that's the way I read it. Now, maybe I'm wrong.

Mr. SWENT. Well, we haven't had time to go through your bill as thoroughly as it needs to be gone through; and if it goes on further in committee hearings, we'll be glad to testify and clarify on our position. I think you're absolutely right, you have the tenor out of the statement that we do support and believe that this is a Federal

responsibility. We want to see that it's done equitably. As I say, Mrs. Ratliff this morning testified that she received a compensation award in 1978, I believe. We wouldn't want something done which, for instance, would give somebody else twice the amount of money that she got. I think that we have to keep this on an equitable basis. If you want to go back and try to give her more money, why, that's something else, but I think we should try to maintain a nondiscriminatory situation.

Senator DOMENICI. Let me put it this way. I don't know whether I agree with the statement about the lady that you know very well or not. I mean it would appear to me that maybe if she didn't get enough compensation, it's rather irrelevant. That's a lawsuit she filed, and I don't know what she got. I think we have to take a look at an era.

Mr. SWENT. Yes; I know what she got, but I don't think I should tell you here in public.

Senator DOMENICI. Maybe it's adequate. Maybe it's not adequate. I guess what I'm really concerned about, I don't want the thing to overlap. If we've got adequate laws now, you know, covering past a certain date, then I'm for leaving that; but I'm talking about another little era when we can nitpick into where the people will get nothing. You know, we talk about cigarettes versus noncigarettes, but there was smoking allowed in the mines then. So I don't know the relevancy of it other than certainly they could get it from cigarettes or the mine, right, that's the only relevancy to that first body of statistics because there was no prohibition. You went in there and you could smoke. I guess one might argue, however, you smoke more off the job than on the job, and you could have that going, too. So it seems to me we ought to get on with something acknowledging this was a rather bad part of history, as has been said by some very superb people.

Mr. SWENT. I have to agree that there's a bad period there, yes.

Senator DOMENICI. Then let's get on with taking care of it.

Mr. SWENT. All our comments and these precautions that we mentioned are so that it be done equitably.

Senator DOMENICI. Oh, yes. All I'm saying is equitably does not mean to make it so difficult that the equity is that nobody gets anything. That's equity, too.

Mr. SWENT. On the other hand, for instance, there have been 46 claims, I think I read in there, that were denied in Colorado and 74 have been paid. We don't like a situation where, under your bill, there wasn't some judgment as to who was entitled to the compensation and who isn't, the way Colorado has exercised their judgment.

Senator DOMENICI. Well, our bill is pretty rough. One lawyer has already told us unless we put the presumption in there will be no compensation awards in Utah.

Mr. SWENT. I think another lawyer also testified that that's changing there.

Senator DOMENICI. Yes; if it had been that doctor during the next 5 years under this draft, the first doctor, there would be none; and, then, the doctors change, and it would be starting to maybe move toward Colorado. I don't see why we can't learn from that, and I really don't think for an era and a group why we have to be so meticulous about making sure that Colorado, which you say is liberal, remains liberal, and Utah, which has been conservative, remains conservative, because

that's not discriminatory. Against whom? Against Utah and Colorado claimants, but it might be very discriminatory. It might be; I don't know.

Mr. SWENT. These laws and their practices do vary, and this gets back to the heart of the question of Federal workmen's compensation versus State, which is a completely new and different field that you're trying to address. You're right on the edge of it all the time.

Senator DOMENICI. Yes, you're right. I understand.

Mr. SWENT. Thank you, Senator. We appreciate your interest in this.

Senator DOMENICI. Let me just say this to you, Bill. I would hope that if there's any idea that we are not going to push this, Bill, we are. We don't have jurisdiction in the Aging Committee. It's an oversight committee, but I agree with the people here of Senator Fidel's quality saying: Get it done; get something passed, and get it out there and take care of an era we don't want to go back and relive; but I don't think it does any of us any good, to tell you the truth, and I say this to you in behalf of the mining industry in New Mexico, to come here and say there is a Federal responsibility and we support that, and, then, you know, at every level to be as reluctant to say well, let's go with something and get it done, but rather let's analyze this and this and that and the other and the other, you know, so I hope we can get together and agree on something that will work and will not be filled with loopholes and won't be filled with all kinds of conditions that haunt us today about the adequacy of compensation in the past. You know, it wasn't the greatest era of liability either, employment liabilities. I mean compensation laws have gotten much better. We all would admit that. So I just say that to you as an executive, and I hope you will pass it on to the leaders here.

Mr. DARMITZEL. Senator, we appreciate that.

Let me clarify our position.

First: We are firmly committed to supporting a program that would compensate those for which there is a reasonable presumption that their contracted disease is, in fact, related to the occupation in which they engaged; and our interest is in seeing that whatever legislation is drafted retains that job-related connection to the extent that it is possible to do so in legislation. What we are attempting to point to as the concern is, we would hate to see a bill enacted which cut that tie to the extent that almost anybody who makes a claim immediately becomes job-connected, because we are concerned that that precedent would be carried on further, and we certainly want to indicate to you our interest and support of taking care of those people who do, in fact, have a job-related occupational disease.

Our industry has, in the past, in State legislation, been very active. I personally have been involved in task forces where our workmen's compensation and occupational disease legislation has been updated in line with the President's Commission, and those principal points that they outline—and we are interested—we participated in the elimination of the medical limitation that New Mexico had for a long time. These kinds of things we are concerned with, but we would like to see that if employers are to pay for the premiums that will underwrite the benefits to be received by the employees that there truly be an effort made that these benefits be job-related.

Senator DOMENICI. Let me see if I can put it this way. Actually, I would be concerned about this setting a precedent also, because it appears to me that it's hard enough to draw a fair compensation law for job-incurred illness and injury when you apply it to right now. I mean you and I and four or five others in good faith trying to draw a modern one right now applying to the future would have a hard time, and probably I might agree with that, that if we're going to err there, let's err on the conservative side. Let's say that as an example; but what if we are drawing on we really want to cure some things of 20 years ago and 25 that weren't covered. Now, I think we have to err on the side of the claimant there. Let me tell you why, because those are going to be incredibly difficult to prove. I mean we aren't talking about things that are occurring from this point forward with modern records, modern technology in those mines measuring things, modern record-keeping. We're dealing with memories that are gone, 25 years ago, husbands been gone for 15, or 8, or 9, and, you know, if we are not careful to be erring on their side, they're all going to lose on technicalities. That's all I'm saying, and I hope that we're not going to do that because we're afraid to face up to a little bit extra money involved in getting this paid. We're not going to put it on the companies. In fact, if the bill flies, it's going to be on the basis that the Federal Government botched this thing up pretty good, and I'm not so sure some might not want the companies involved. I would just rather not have the hassle and say, "Feds, it was your problem, you ought to pay."

Go ahead, sir.

Mr. SWENT. I would agree with you, and I'm fed up with a lot of people that haven't gotten compensation because of these technicalities. I agree with you completely there, and I am glad to know that you have in mind trying to do a fair bill, as far as it could be made.

Senator DOMENICI. Yes, and all I'm saying is that fair in this regard might be a little different than fair from this day forward.

Mr. SWENT. Our position is we just don't think it should be made so open that anybody who had a lung disease is automatically entitled to compensation. You need some safeguards on it to keep it from being a giveaway program, and, as I say, I know of some people who have had severe injustices from technicalities, and they have my real sympathy, and I agree with you on that point. I know many of them personally.

Senator DOMENICI. Thank you both very much. Good to have you with us. We will recess until 6 p.m.

EVENING SESSION

PANEL OF HEALTH EXPERTS AND MINE SAFETY OFFICIALS

STATEMENT OF THOMAS J. CASTOR, ALBUQUERQUE, N. MEX., SUPERVISOR, MINE SAFETY AND HEALTH ADMINISTRATION

Mr. CASTOR. My name is Tom Castor, the supervisor of the Albuquerque field office.

I want to give a real brief rundown on mine inspection. The first time the Federal Government had any authority to inspect the mines was back in the late 1960's, and it was Public Law 89-300. They had the right to get into the mine, but they had no authority.

The next law we had was the Federal Metal-Nonmetallic Mine Safety Act of 1966. This became effective July 30, 1970. It was under the Bureau of Mines, Department of Interior.

This was the first law that had mandatory provisions for health and safety in metal and nonmetal mines. The first priority of this law was to hire and train mine inspectors.

The interpretation and applications to the mandatory standards were not always consistent. Long compliance times were given for the abatement of citations.

The law had provisions for the withdrawal of miners for eminent danger and shutdown for noncompliance. This was a difficult law to enforce in that if an operator failed or refused to shut down his mine or withdraw his miners, the legal procedures were slow.

MESA was established in 1973 and the change was mostly in name only, from the Bureau of Mines to Mining Enforcement and Safety Administration.

On March 9, 1978, the Federal Mine Safety and Health Act of 1977, under the Department of Labor, became effective. This act provided for monetary penalties to be assessed for violations of mandatory standards, as well as for violations of the act itself.

A miner can now request an inspection if he believes a hazard exists. A miner has the right to participate in a complete inspection and suffer no loss of pay. A miner cannot be discriminated against for making safety complaints.

This act provides for new miner training and annual retraining of experienced miners. The first priority and concern of all in the mining industry must be the health and safety of its most precious resource, the miner.

I have here a few statistics concerning inspections in uranium mines in New Mexico since March 1978. I will go over these real quickly.

In 1978, we inspected nine surface operations, mines and mills. We issued 128 citations and 3 withdrawal orders.

In 1979, the first half of the year, we inspected these same 9 operations, issued only 34 citations and 3 withdrawal orders, 94 less than the first time.

In 1978, we did not investigate any complaints. In 1979, two complaints and four citations.

In the underground uranium mines in 1978, there were 41 active mines. We made 46 regular inspections. Five mines were inspected twice; 329 citations were issued and 2 withdrawal orders.

The first quarter of 1979, there were 41 active mines. We inspected them each one time. 253 citations were issued, 76 less than in 1978; 8 withdrawal orders were issued, 6 more than in 1978.

The second quarter of 1979, there were 44 active underground mines. We made 46 regular inspections. Two mines were inspected twice, with 153 citations, 100 less than the first quarter of 1979; 176 less than the 46 inspections in 1978, 10 withdrawal orders were issued, 2 more than previously. Two complaints in 1978 on underground mines and one citation.

In 1979, 13 complaints were investigated, 4 citations were issued.

I went back 1 year on fatal statistics. In 1977, there were nine fatal accidents investigated in uranium mines.

In 1978, there were nine fatal accidents in uranium mines. To date in 1979, there has been one fatal accident in uranium mines. That is a good improvement.

Real quickly, I want to sum up with our radiation sampling statistics in uranium mines.

Senator DOMENICI. Before you do that, might I ask—for purposes of generalizing—when you speak of citations, accidents, would it be fair to say that very few of these that you've indicated to this point have to do with ventilation and the things we are concerned about in terms of cancer, and that the next part, the samplings of radiation statistics, is more relevant to the quality of air? Is that fair as a general proposition?

Mr. CASTOR. Yes; Senator. The figures I will give on radiation now are included in the previous figures.

Senator DOMENICI. We have some people here that aren't familiar with the law as you and I are, and we talk about citations. They might assume that's related only to air quality. That's related to everything, a broken light bulb, something off a piece of machinery?

Mr. CASTOR. Yes.

Senator DOMENICI. All right.

Mr. CASTOR. The complete safety and health citations of the entire mine.

Senator DOMENICI. Now you can talk about samplings of radiation.

Mr. CASTOR. In 1978, we took 1,222 radiation samples. Thirty-seven citations were issued for high radiation. This is over one working level. That figures 1 citation for 33 samples taken. The first quarter of 1979, we took 1,570 samples, 43 citations; 1 citation for 36 samples taken, an improvement.

The second quarter of this year, 1,529 samples, 38 citations issued and that figures 1 citation for 40.2 samples. In addition, we had a crew of people come in and run a 103-I radiation spot inspection of all active uranium-producing mines.

They took 542 samples and issued only 9 citations. This is 1 citation for 60.2 samples taken. We were real pleased with that and we are also very pleased with the improvement we are finding in the uranium mines.

We want to thank the miners, the unions, the miners representatives and the mine operators for this. Thank you.

Senator DOMENICI. Thank you very much. I think you might be the one to ask this question and if not, we could pass it on to Dr. Wagoner.

This unit of 1 working level or 10 working levels, or might I say the unit called a working level, was it a measurement in existence 20 years ago?

Mr. CASTOR. I have a definition of a working level, if you would like it.

Senator DOMENICI. No; what I am saying is, if we are using a very good standard now and somebody says, "Gee, it was much worse 15 years ago," are we apt to find some evidence that it was 15 working units then, or did we not use working units 15 years ago or 20?

Dr. WAGONER. Senator, the concept of a working level, I think, was first defined as a result of a conference that the Governor of the State of Utah held in 1955 and it was in the 1956-57 period that the concept of the working level first came into existence.

Senator DOMENICI. So, there just might be some evidence around as to the condition in terms of ventilation and radioactivity that would relate to the standard now that everybody could understand, 15 times as much or 10 times as much, because of that working unit definition? All right.

Thank you very much, Tom.

Dr. Wagoner, thank you for your patience today and we are glad to have you.

**STATEMENT OF DR. JOSEPH K. WAGONER, WASHINGTON, D.C.,
SPECIAL ASSISTANT FOR OCCUPATIONAL CARCINOGENESIS, OF-
FICE OF ASSISTANT SECRETARY, OCCUPATIONAL SAFETY AND
HEALTH ADMINISTRATION, U.S. DEPARTMENT OF LABOR**

Dr. WAGONER. Thank you, Senator. I submitted a formal statement¹ and I would rather that it not be classified or judged as a statement but as a state of art of the scientific information to date with regard to the health hazards indigenous to the uranium mining industry.

I am going to be rather brief. The hour is getting late. But I think there were several points that are very important to be addressed today.

My initial involvement in the problems of uranium miners actually began in 1960, when I came into the Public Health Service. This was the first task I was assigned, and I've been with it over the next 19 years.

Hopefully, as a result your activities, this will be the last year that we have to address this problem.

You, in your opening statement, addressed the consensus of the testimony that was given before Senator Kennedy's hearing. That testimony was that by the 1940's, when large-scale mining and milling of uranium ores for nuclear weapons production started in the United States, the lung cancer experience of miners in central Europe and its probable relationship to radioactivity with mines was widely published in the scientific literature, generally acknowledged as factual by the independent scientific community, but little heeded by the Government.

It was only natural, I think, that members of the medical research community should really be concerned, in light of the past information that was available, which indicated that anywhere from 30 to 70 percent of those miners in Europe were dying due to lung cancer.

As a result of these concerns, the U.S. Public Health Service, in 1950, initiated a program to delineate and mitigate the hazards of internal radiation emitters to man. This program consisted of three phases: An industrial hygiene survey of environmental conditions and engineering control practices within mines and mills, a cross-sectional survey of medical signs and symptoms manifest by miners and millers, and a cohort study of cause-specific mortality patterns experienced by miners and millers.

With regard to where we failed in the past, I think we only need to look at some of the data that is available. Actually, measurements made in the mines in the United States in the 1949-50 period, showed that atmospheric concentrations of radon in those mines were similar

¹ See p. 60.

to those that had been reported earlier in Jochimstal and Schneeberg the same areas where 70 percent of the miners were dying due to lung cancer.

None of these mines at that time were reported to have any mechanical ventilation whatsoever.

Environmental sampling undertaken in the 1952 period showed approximately 45 percent of the uranium mines in the United States were experiencing radon daughter concentrations in excess of 10 times the working level and 16 percent were in excess of 50 times the working level.

By 1959 and 1962, we got that down to a more reasonable level and I think it's noteworthy that New Mexico was the leading State in doing that. During 1962, I believe, there wasn't one measurement attained in New Mexico that exceeded 10 times the working level.

Still, I think we should realize at that time 68 percent of measurements within our mines were still in excess of the then existing standard of one working level.

We also medically examined the workers, as many as we could obtain during the period 1950 through 1960. The results of those studies now have shown that prolonged inhalation of radon daughter products in mine air contribute to pulmonary disability.

Furthermore, underground uranium mining has been associated with increased prevalence of suspicious cells in the sputum, of shortness of breath, of persistent cough, of pneumoconiosis and, indeed, under funding of the public law, those findings have been replicated over in Yugoslavia. Our own studies now have demonstrated that with regard to nonmalignant disease, in one group we have followed up, 80 deaths have been experienced, whereas we would have expected less than 25 to occur.

We first showed, in 1961, that uranium miners were experiencing an increased risk of lung cancer. In evaluating that data, Dr. Brian MacMahon stated:

If after the European experience, there was any doubt as to the implication of radioactivity in the etiology of lung cancer, they surely have been resolved by the findings in the present study to date * * * the data to date, therefore, give no comfort to those who are concerned that the problem in American mines may become a disaster that, in relative terms, could be as great as the European experience, and because of the larger population at risk, could be numerically very much greater.

I'll skip over the rest of my testimony showing the sequential analyses, but all we need to do is refer to table 1 of the testimony and we see that the epidemic or disaster that Dr. Brian MacMahon predicted really has come to pass.

We now have anywhere from 114 to 164 excessive deaths due to lung cancer from 1 group of uranium miners that have been followed up, over an extended period of time.

Two or three other, things I think, are extremely important as they relate to workmen's compensation. There was a feeling by some that two standards ought to set: One for those who smoke and one for those who don't smoke. For those who didn't smoke maybe we ought to set a much more lenient standard or no standard.

Fortunately, the Public Health Service didn't take that posture. Fortunately, I say, because analyses of the Indian population who don't smoke has now shown a similar excess of lung cancer, similar to what we've seen in the white population, an excess of the same histologic type of lung tumors.

Dr. Saccomanno, sitting in the audience here, was a leader in the identification that undifferentiated oatcell carcinoma was most prevalent among our miners.

Unfortunately, this led to some problems, because in the workmen's compensation proceedings, there were those who took the position that if you didn't have oatcell carcinoma, it wasn't radiation induced.

Our studies have now shown that not only is oatcell carcinoma increasing, but several other cell types are also increased.

I think it's fair just to skip over the rest of my testimony, which I think is a fairly close proximation of what has occurred, but I would like to say two things in closing that I think are important.

That is, neither the Government nor the lay public, nor management or labor should be really complacent about the very long period of time between when we start controlling a problem and the subsequent eradication of an epidemic.

We are in an epidemic of lung cancer among uranium miners. It is continuing. The risk is not subsiding. In support of a public health concern for uranium miners, I think it's only appropriate that one would want to quote former Secretary of Labor Willard Wirtz, who stated before the 1967 Joint Committee on Atomic Energy, "There is nothing more critically imperative today than this society's assertion of the absolute priority of the individual over institutional interests and of human over economic values."

Senator, with regard to the comment that was made on the panel prior to this, Harold Tso of the Environmental Protection Commission of the Navajo reservation spoke to the issue of some houses that had high radon daughter exposures.

I think it's important, after speaking to several of the people who I've had the pleasure of meeting here today, to inform people that we now have a publication which has been presented in the United States by our Swedish colleagues, a publication entitled, "Health Hazards from Radon Daughters in Dwellings in Sweden."

This study shows anywhere from a threefold to fivefold increased risk of lung cancer among people who live in houses made of materials that have radon daughters as opposed to wooden-type homes.

So, I support Mr. Tso's extreme concern about doing some monitoring of the houses and the individual living within those houses.

Senator, I would be more than willing to answer any questions you have and I would offer that I would be more than willing to make available, in terms of the initial effort for public health education to all of the people here, a complete listing of all the publications that deal on the health hazards of uranium mining and milling, so we can start a dialog and these people who are involved can have that information for their own disposal.

Thank you.

Senator DOMENICI. Doctor, could we, at least for the record, have the list of those to give them to the staff?

Dr. WAGONER. Yes, I will make that list available.

Senator DOMENICI. We don't want to make all the publications a part of it, but at least the list.

Let me just ask you one quick question now. What you are saying, as I understand it, Dr. Wagoner, is that even if we are to assume there has been a significant improvement in ventilation and exposure, that because it takes too long for the exposure to result in illness, that we might as well face up to the fact that we are still going to find a signi-

ficant increase from this day forward of lung cancer among uranium miners that have an early history of exposure, when we had a lot of it around?

Dr. WAGONER. These problems, as identified in terms of disease and premature death due to lung cancer, will be with us for decades to come, because of what we did not do decades ago.

Senator DOMENICI. As long as we are willing to say that is the result of an era and let's take care of it, you are suggesting facing up to that is not impugning the great advances we have made in health safety through ventilation and other technology that exists today?

Dr. WAGONER. Absolutely not. There is no contrast whatsoever as to what we are experiencing in the uranium mines today versus what we experienced in the past.

They differ by orders of magnitude, they are decidedly different today than they were then.

Senator DOMENICI. We will make your full statement a part of the record.

Thank you for being patient and coming down with us today.

[The prepared statement of Dr. Wagoner follows:]

PREPARED STATEMENT OF DR. JOSEPH K. WAGONER

Senator Domenici and members of the Senate Special Committee on Aging, I am Dr. Joseph K. Wagoner, Special Assistant for Occupational Carcinogenesis, Office of the Assistant Secretary for Labor, Occupational Safety and Health Administration, Department of Labor. I currently am on detail to OSHA from the U.S. Public Health Service. I am a graduate of the Harvard University School of Public Health, having received a doctoral degree with a major in epidemiology-biostatistics and a minor in radiation biology.

My role in the investigation and evaluation of scientific data on the adverse health consequences of uranium mining and milling date from 1960 when I became a commissioned officer of the U.S. Public Health Service. During the past 19 years, as a staff member of the National Cancer Institute and the National Institute for Occupational Safety and Health, I have been extensively involved in studies of uranium miners and millers. These studies have resulted in the publication of numerous scientific papers, the promulgation of a more stringent standard for the control of radon daughter exposure and the receipt of the U.S. Public Health Service commendation award. I am giving testimony on the basis of my own scientific experience and knowledge and thus I do not represent the Department of Labor per se on any issue of policy or legislative matters.

As early as the year 1546, miners of uranium bearing ores in the Erz Mountains of Central Europe were reported to have an unusually high frequency of fatal lung disease (Agricola, 1597). Although the malignant nature of this disease was first noted in 1879 (Harting, 1879), it was not until the early 1900's that bronchogenic carcinoma of the lung was established as the definitive diagnosis (Arnstein, 1913; Rostoski, 1926; Pircham, 1932). Lung cancer is reported to have caused between 30 and 70 percent of the deaths among these miners of uranium bearing ores (Arnstein, 1913; Rostoski, 1926; Peller, 1939; Hueper, 1942; Lorenz, 1944; Schraub, 1964). Radon and radon daughters were considered to be the prime agents responsible for this unusually high frequency of lung cancer.

It is against this background of scientific knowledge, that large-scale domestic mining of uranium began in the United States in 1948, an activity requiring licensure from the Atomic Energy Commission. With this advent of uranium mining in the United States, it was natural, therefore, that concern should center about the health hazards indigenous to the mining and milling of uranium. As a result, the U.S. Public Health Service, in 1950, initiated a program to delineate these health hazards. This program consisted of two phases: An environmental investigation and a medical-epidemiological study. Measurements made in 1949-50 showed that the atmospheric concentrations of radon in U.S. uranium miners were similar to those reported in European operations (Holaday, 1964). None of the U.S. uranium mines at that time had mechanical ventilation. Environmental sampling in 1952 showed that about 45 percent of uranium miners were exposed to radon-daughter concentrations in excess of 10 times one working level and 16

percent were exposed to concentrations in excess of 50 times the working level (Holaday, 1964). By 1959 and 1962, marked improvement in the control of radon-daughter concentrations had been achieved, with New Mexico showing the greatest improvement (Holaday, 1964). Nevertheless, 68 percent of uranium miners in the Colorado Plateau area still were in excess of one working level, the then existing standard.

Periodic medical surveys were conducted during the period 1950 through 1960. Before 1954, both uranium miners and mill workers were examined, but no effort was made to examine all workers. During the 1954 through 1960 period, however, an attempt was made to examine as many miners as possible. A total of 5,370 miners and millers underwent medical examination. Analyses of medical examination data indicated that prolonged inhalation of radon daughter products in mine air contributed to pulmonary disability (Archer, 1964a). Furthermore, underground uranium mining was shown to be associated with increased prevalence of "ambiguous and suspicious" cells in sputum of shortness of breath, of persistent cough, of pneumoconiosis, and possibly with wheezing and chest pain (Archer, 1964b).

As early as 1961, white underground uranium miners in the United States were shown to be experiencing a significantly increased risk of lung cancer mortality, an increased risk which was associated with duration of employment (Archer, 1962; Cooper, 1962).

In discussing this study a professor of epidemiology stated: "If after the European experience, there was any doubt as to the implication of radioactivity in the etiology of lung cancer they surely have been resolved by the findings in the present study to date." The data to date, therefore, give no comfort to those who are concerned that the problem in American mines may become a disaster that in relative terms could be as great as the European experience and, because of the larger population at risk, could be numerically very much greater (MacMahon, 1962).

Through 1962, from among approximately 3,500 white underground uranium miners, 12 lung cancer deaths had been observed as contrasted with only 2.8 such deaths expected (Wagoner, 1964 a, b, c). These analyses further demonstrated that factors other than radiation were not responsible for this excess of malignancies. Through 1963, analyses demonstrated 22 lung cancer deaths observed as contrasted with 5.7 expected (Wagoner, 1965). These analyses also demonstrated an exposure response relation between air borne radiation and the incidence of respiratory cancer. Six circumstances were presented supportive of a causal relation between airborne radiation and respiratory cancer among uranium miners. Numerous additional analyses of lung cancer mortality among this same group of white underground uranium miners has now demonstrated a public health problem of epidemic proportions (table 1).

On the basis of these and other data, the Department of Labor in 1967 issued an order under the Walsh Healey Public Contracts Act to limit the maximum permissible exposure of uranium miners to 3.6 WLM during any 12 month period, i.e., a 0.3 WL standard. This standard eventually was implemented in 1971.

Early during the epidemiological study of U.S. uranium miners, the histologic cell type of bronchogenic carcinoma was shown to be markedly different from that experienced by the general population of similar smoking habits and age distribution (Saccomanno, 1971). The increased relative frequency of small cell undifferentiated types suggested to some the possibility that only one histologic type of bronchogenic carcinoma may be induced by radiation and such suggestions have been used in evaluation of bronchogenic carcinoma for workmen's compensation purposes (Archer, 1968). Subsequent analyses using the rate approach demonstrated that the excess of bronchogenic carcinoma among uranium miners was not restricted to one histologic cell type, rather epidermoid, small cell undifferentiated and adenomatous types were all increased (Archer, 1974).

In the early USPHS studies, a similar excess of lung cancer mortality was not clearly demonstrated among American Indian uranium miners who were known to use little or no tobacco (Lundin, 1971). This observation suggested to some individuals that most underground uranium mining should either be done by nonsmokers, or that if both nonsmokers and smokers worked as miners, then a more lenient exposure standard or no standard should be set for nonsmokers. Analyses of the lung cancer mortality among Indian underground uranium miners through 1974 was now demonstrated a significant excess of lung cancer (11 observed versus 2.6 expected). This excess is independent of cigarette smoking (Wagoner, 1974; Archer, 1976). Similar excessive risks of lung cancer have been

demonstrated among nonsmoking miners exposed to random-daughter in Sweden (Axelson, 1978, Axelson, 1979) and in New Mexico (Bunker, 1979).

More recently epidemiological studies of Czechoslovak miners have demonstrated an elevated frequency of most histologic types of lung cancer (Kunz, 1979). In addition, these studies have now demonstrated a significant excess of lung cancer among uranium miners at each cumulative radiation exposure category down to and including 100-149 WLM. A doubling of the lung cancer risk was also demonstrated at radiation exposure categories less than 50 WLM and 50-90 WLM although this excess was not statistically significant (Svc, 1976).

In closing, neither the government, lay public, nor management-labor should unwittingly remain complacent about the very long period of time necessary from the institution of controls to the eradication of occupationally related cancer all of which can and should be prevented. In support of this public health concept, I should like to quote former Secretary of Labor Willard Wirtz who stated before the 1967 Joint Committee on Atomic Energy hearing regarding radiation exposure of uranium miners. "There is nothing more critically imperative today than this society's assertion of the absolute priority of the individual over institutional interests and of human over economic values."

Mr. Chairman, I will be pleased to answer any questions about this presentation that you or members of your committee may have.

TABLE 1.—RESPIRATORY CANCER MORTALITY AMONG WHITE UNDERGROUND URANIUM MINERS

Period of followup	Observed	Expected	Relative risk	Attributable risk	Author
1950 through December 1962.....	12	2.8	429	9.2	Wagoner, 1964.
1950 through December 1963.....	22	5.7	386	16.3	Wagoner, 1965.
1950 through June 1965.....	37	7.4	500	29.6	Lundin, 1967.
1950 through September 1967.....	62	10.0	620	52.0	Lundin, 1969.
1950 through September 1968.....	70	11.7	598	58.3	Lundin, 1971.
1950 through September 1974.....	144	29.8	483	114.2	Archer, 1976.
1950 through December 1978.....	1 205	1 40.0	1 510	1 164.0	Wagoner, 1979.

¹ Estimates based upon incomplete followup.

Senator DOMENICI. Dr. Leon Gottlieb, Navajo Family Health Service, Shiprock.

We are delighted to have you, Doctor.

STATEMENT OF DR. LEON S. GOTTLIEB, NAVAJO FAMILY HEALTH SERVICE, SHIPROCK, N. MEX.

DR. GOTTLIEB. Thank you for being here. I am happy to participate in this very well ventilated room.

Senator Dominici, your bill is good, timely, and pertinent for this reason. We are witnessing a tragedy of an epidemic of lung cancer among former uranium miners.

I am happy that you have included the lung-induced, nonradiation lung disease, because this is an important factor.

I am in intimate clinical contact with many of the miners. Many of them, those who do not have radiation-induced cancer, do have silicosis and we know that even though they have ceased their employment in a silicon-laden atmosphere, the disease can still progress.

One important point I would like to dwell on and that is the close surveillance of a high-risk cancer group.

Senator DOMENICI. State that again, please.

DR. GOTTLIEB. The close surveillance of a high-risk cancer group, and the former uranium miners comprise this group.

I would like to suggest a protocol that I am following today, and that is the surveillance should consist of monitoring chest X-rays and sputum tests. A chest X-ray three times a year, and sputum analysis

three times a year to observe for tumor or cancer cells, as well as examination for tuberculosis, which is closely related to silicosis.

Pulmonary function tests should be evaluated at least yearly to assess the effects of pulmonary fibrosis, or radiation fibrosis.

I repeat, radiation fibrosis as distinct from pulmonary fibrosis caused by silicosis and its sequelae. We do know that although exposure to a silicosis-containing atmosphere has ceased, the disease process may progress and worsen.

What can this program accomplish? With lung cancer, the diagnosis will be made earlier, while the prognosis is more hopeful.

With silicosis and pulmonary fibrosis, therapy, treatment, may be instituted early to allay or retard the downhill course and its complications.

Again, I wish to commend the Senator on a very thought out bill, and I hope he's able to get it through.

Thank you.

Senator DOMENICI. Doctor, how much longer do you have with Public Health. How much longer will you be with them?

Dr. GOTTLIEB. I'm not with Public Health. I'm with the Navajo Family Health Service at Shiprock. It so happens I've had a bit of experience in lung disease. I've been there 1½ years. I hope to see your bill implemented.

Senator DOMENICI. Will you be available to come and testify, and bring the case histories and things if we need you?

Dr. GOTTLIEB. Yes, I certainly will.

Senator DOMENICI. Let me ask you one more question before we switch over.

With our health institutions for the Navajo Indians, hospitals we've got around, we know where most of them would be going. Do you think we could find some facts that would show—all Navajo men during that period of time didn't work in uranium mines, right? I mean, a lot of them were shepherders, a lot of them in little towns, it seems nonetheless a lot of them would go to hospitals to be treated by somebody.

Do you think we could dig up some statistics showing they don't get cancer, this proportion, unless they are working there?

Dr. GOTTLIEB. We are in the midst of a study right now in which, from 1965 to 1979, there were 17 cases of lung cancer, 16 were Navajo miners, 1 was a nonminer.

Senator DOMENICI. Am I correct in saying that for the most part, in what we can ascertain, Navajo miners, that you are looking at case histories and treating, are nonsmokers?

Dr. GOTTLIEB. For the most part, Navajos do not smoke, and for the most part, they were nonsmokers.

Senator DOMENICI. I know that many of the medical people know about the Navajo Nation and the Navajo people in terms of cultural environment and health as being a little bit different than the rest of the country.

In fact, some have suggested we ought to go there with special programs to learn, that we might even apply some of this knowledge to other parts of the world, because we have a different kind of health condition.

Do you know of anything in culture, environment, or habits there that would account for this above-average cancer, other than uranium mining?

Dr. GOTTLIEB. On the other hand, living in a relatively non-polluted atmosphere, this population shouldn't have the incidence of cancer that the general population has in the country.

The other factors of stress and strain, they have certainly less of that than the general population, because of their culture and their harmonious type of existence.

Senator DOMENICI. That would certainly, based on your and my contacts now and involvement, that would be less 20 years ago than now? There may be more stress today, more than there was 20 years ago on the reservation?

Dr. GOTTLIEB. Much less 20 years ago.

Senator DOMENICI. All right, we may have a few more questions, but let's go on now.

I want to go ahead with the list as I call them, so I am going to go with Dr. Valdivia of Grants Clinic. And, Dr. Buechley, you are next.

STATEMENT OF DR. ARNOLFO VALDIVIA, GRANTS CLINIC PROFESSIONAL ASSOCIATION, GRANTS, N. MEX.

Dr. VALDIVIA. Here in Grants, the Grants Clinic takes care of the employment and physical examination of the majority of the mines.

We've got in our records more than 27,000 employment physical examinations. I have prepared a statement, but in view of the lack of time, I will just touch the highlights of that statement.

Senator DOMENICI. The statement will be made part of the record.¹

Dr. VALDIVIA. All right. During the 20 years the clinic has been in operation since 1958, we have been able to detect 21 cases of lung cancer. Of those 21 cases, 19 are deceased and 2 are still alive.

All those 21 cases were in miners who had worked previously in other mines. We have not had a single case in a miner who had worked exclusively in the Grants area. All had previous mining history. They worked in several parts of the United States, including the Colorado Plateau, where we all know there was much higher exposure.

In Grants, the exposure levels have dropped tremendously from around 130 before 1960, to around 27 around 1970, and to below 4 in our present time.

All the 21 cases, also, were in cigarette smokers. We have not had a single case of a miner who did not smoke. This relation with cigarette smoking has also been pointed out by Dr. Gino Saccomanno, who is here at present.

I had a chance to talk with him earlier today, and by now he has more than 300 cases of lung cancer, and in 95 percent of the cases, there was a history of smoking.

Senator DOMENICI. In light of the fact that Navajos get it who don't smoke, what does that mean to you?

Dr. VALDIVIA. We agree with you. We are doing a study on these respects and you will hear, probably, from Dr. Buechley.

We have three groups here, the Anglos who smoke very much, the Chicano group that smoke less, and the Indians that smoke much less.

I believe that exposure to uranium increases the chances of getting cancer, but exposure to uranium and smoking at the same time increases much more.

¹ See p. 65.

There is an interesting editorial study in the Journal of the American Medical Association of August 3 of this year. This study deals with smoking and working with asbestos. In this study, it states the death rate of 100,000 man-years for people who do not work with asbestos and who do not so smoke, is 11.

For people who worked in asbestos, it is 58. This goes up to 122 for people who smoke, but who do not work in asbestos. And it goes up to 601 for people who have the double exposure of working in asbestos and smoking cigarettes.

We believe in the etiological study that we are presently undertaking with the University of New Mexico, eventually the research will show there is the same synergistic effect between working with uranium and smoking.

It is not possible to tell nowadays what cancers are due to radiation and what cancers are due to smoking. In the causation of the cancer, we cannot tell for sure how much is due to smoking and how much is so due to radiation.

Because of this, I believe that unless everybody that works in the uranium mines, for their own good, stops smoking, it would be very difficult to tell for sure how much is due to radiation and how much is due to smoking.

In regards to other malignancies, other than the lung cancer, we've got very few cases. So, we cannot address too much in that direction.

Finally, I want to touch very briefly on dust-induced diseases. Here in Grants, the mines are in a sandstone formation, which is soft and with the modern techniques, more adequate ventilation, with wet drilling there is almost no dust.

We have not been able to see a case that has minded only in Grants that has developed pneumoconiosis or silicosis. The cases we've had have been miners who have worked before in other mines in other places in the United States.

I just hope this brief clinical observation of our clinic will stimulate further investigation for an impartial and fair solution to the uranium miners.

I also hope we all should push for preventive medical procedures like increasing ventilation in the mines that are not meeting present standards, more frequent measurements of radiation exposure, provision of no smoking in the mines and out of the mines, encouraging antismoking campaigns and clinics, and encouraging the miners, or making it mandatory, to have periodic or physical examinations, chest X-ray pictures, and examination of the sputum, because these examinations, at the present time, are only on a voluntary basis.

Thank you very much.

[The prepared statement of Dr. Valdivia follows:]

PREPARED STATEMENT OF DR. ARNOLFO VALDIVIA

I am Arnolfo Valdivia, M.D., chief of the medical staff of the Grants Clinic. I wish to thank Senator Pete Domenici for inviting me to testify before this committee.

The Grants Clinic, which I represent, opened its doors in July 1958. Since the very beginning, the medical staff of the clinic has been very much interested in the health problems of the uranium miners. Matt Connell, founder of the clinic, was a witness at the hearings of the Joint Committee on Atomic Energy of the

Congress of the United States in 1967. Dr. Connell testified, based on his experience with 11,345 physical examinations performed up until that time. Since 1958, we accumulated in our files over 27,000 preemployment physical examinations. We provide most of the preemployment physical examinations for the mines operating in the Grants area (Kerr McGee, United Nuclear Homestake, United Nuclear Corp., Western Nuclear, Ranchers, Sohio, Gulf Mineral, Phillips, Anaconda, etc.). As part of this examination, we obtain the previous mining history of the worker, a chest X-ray picture, a sample of sputum for cytologic examination, and a blood sample. We also provide routine annual physical examinations of their workers, with special interest in the detection of bronchogenic carcinoma, and for this purpose we repeat every year the chest X-ray picture and the cytologic examination of the sputum.

We pay special interest to all the cases we hear that have or have had cancer of the lungs or death results. We try to obtain all the information about these cases from the patients themselves, from their relatives, attending physicians and any other reliable source. Our intent is to determine exactly how many cases of lung cancer we have had in Grants since our clinic started its operations. It is because of this interest in the subject that we are at present undertaking an epidemiology study in conjunction with the University of New Mexico Cancer Research and Treatment Center, Albuquerque, N. Mex. You will hear more about this from Dr. Buechley.

With the help of the cancer center in Albuquerque, we have been able to detect 19 patients with lung cancer which are deceased and two patients who are alive.

In our study, we have correlated the mining history with the cigarette smoking history of all these cases. We have found that all the cancer appeared in smokers. Not a single case has appeared in a uranium worker who did not smoke. And to the contrary, in our city, we have had three cases of lung cancer in persons who never worked in uranium mines but who were smokers. One was a local newspaperman, another one was a butcher, and the other one was a carpenter who worked with asbestos.

With this knowledge as a background, we now address some comments about the proposed legislation.

The legislation is aimed to compensate:

- (a) "Latent dust induced disease,"
- (b) "Radiation-induced disease," mainly bronchogenic, carcinoma, and lymphomas.

In regards to dust induced disease, mainly fibrosis and pneumoconiosis, we have only seen two cases, but they were in smokers who had worked before in coal mines in Virginia and Kentucky. We had no single case in miners who have worked only in the Ambrosia Lake area.

I believe there are good reasons why we do not see silicosis or any other forms of pneumoconiosis in our miners:

- (a) The mining in Ambrosia Lake is in sandstone formation which is soft.
- (b) As a rule, the ventilation in the mines is very good, with wet drilling and very little dust.

Because of these findings, I believe that the proposed "Uranium Miners Compensation Act of 1979" should not include dust-induced disease.

In regards to radiation-induced disease, other than cancer of the lungs, the incidence is minimal. We have only seen two cases of leukemia and not seen a single case of lymphoma.

Now finally we have left to the last, cancer of the lung, or bronchogenic carcinoma.

It has been widely stated and accepted there is a high incidence of cancer of the lungs in uranium miners. This certainly was true in the Czechoslovakian mines and in the Colorado Plateau mines during the second world war, when because of lack of regulations, the workers were exposed to massive doses of radiation.

In our series, we have only 21 cases. All of them have previously worked in mines outside the Ambrosia Lake Area, including the Colorado Plateau where the exposure, as we said before, is very high. We have not had a single case in miners who have worked exclusively in our local mines. In our areas, the working levels have dropped from a maximum of 139.9 in 1960 to 27.5 in 1970, and to below 4 in the present time. It has been stated that radiocarcinogenesis is not an established medical fact at 1 to 10 working levels,¹²³ and certainly not at 0.3 working levels

¹ "Guidance for the Control of Radiation Hazards in the Uranium Mining," staff report of the Federal Radiation Council. Report No. 8, revised September 1967.

² D. A. Holaday, "The FRC Recommendation. What Does It Mean?" Presented at American Mining Congress, Las Vegas, Nev., October 1968.

³ P. C. Tompkins, "Radiation Protection and Uranium Mining," TOCC Medical, December 1968, vol. 10, No. 12, pages 702-706.

months, which is the maximum to which miners are allowed to be exposed.

As we stated before, all our cases were in uranium miners who were active cigarette smokers. In the series of Gino Saccomanno (Grand Junction, Colo.) of 261 cases the tremendous majority of cancers were found also in uranium miners who at the same time were smokers.

In the editorial of the JAMA of August 3, 1979,⁴ it was stated that the death rates for lung cancer (per 100,000 man years) were as follows: 11 for men who neither work with asbestos nor smoked, 58 for men who worked with asbestos but did not smoke, 122 for cigarette smokers who had not worked with asbestos, and 601 for those unfortunate enough to have had both exposures, cigarette and asbestos. We believe that when we conclude our study, we will find the same synergistic effect between working in uranium mines and smoking. It is impossible to differentiate what kind of cancer of the lungs are due to radiation and what kind are due to smoking. Further, it is impossible to determine how much is due to radiation and how much is due to smoking.

How then would it be possible to compensate a miner for cancer of the lung which is more likely due to his smoking cigarettes? This should prompt us to stop and think before we penalize the wrong party. The only way I can see that we can be fair in granting these benefits is if the uranium miners for their own good, stop smoking.

In closing, before the law is introduced, I believe that we should push for every possible form of preventive medical procedure which includes:

- (1) Increased ventilation in the mines that are not meeting present standards.
- (2) More frequent and more accurate measurements of radiation exposure.
- (3) Prohibition of smoking in the mines and out of the mines.
- (4) Encouraging antismoking campaigns and clinics.
- (5) Encouraging the miners or making it mandatory to have periodical physical examinations, chest X-ray pictures, and cytologic examination of the sputum, because at the present time these examinations are on a voluntary basis.

Senator DOMENICI. Thank you, Doctor.

OK, Dr. Buechley, Robert Buechley, University of New Mexico.

STATEMENT OF DR. ROBERT BUECHLEY, CANCER RESEARCH AND TRAINING CENTER, UNIVERSITY OF NEW MEXICO, ALBUQUERQUE, N. MEX.

Dr. BUECHLEY. There are two items, I think, I can clarify, because we ask the question about the amounts of radiation and I have a statement in here that says the maximum amounts of exposure to radiation in the uranium mines today are one-tenth the average amounts 20 years ago.

In other words, we were going over 40 working-level months per year, per miner, on a regular basis 20 years ago and quite often more than that.

In the Colorado Plateau area, much, much more than that.

The other one is to back up what we heard earlier from the Navajos and now from Dr. Gottlieb; the case of the miners who worked in the mine at Cove, Ariz., and lived in Red Rock, Ariz., or Shiprock, is extremely revealing.

They did not smoke. They did not work in other mines, and yet they got lung cancer in spades. I have a presentation which I have given to your staff which lists their ages. They were dying before age 40. I believe we have 10 out of Red Rock and Shiprock and something like 7 or 8 out of the rest of the Navajo Reservation.

So, that is a very, very special case.

Now, I am going to tell you who I am. This is my presentation. I am Robert Buechley, Ph. D. I work at the University of New Mexico

⁴ Selikoff, I.; Hammond, E.; editorial, "Asbestos and Smoking," JAMA, vol. 242, No. 5, Aug. 3, 1979.

Cancer Research and Treatment Center as the epidemiologist at the New Mexico Tumor Registry.

Let me explain what epidemiology is and what epidemiologists do. They compare people who get a disease with people who don't get the disease, to see how they are different. If at all possible, they count people by sex, age, and race and compute rates of disease for these classes.

I have been studying the epidemiology of lung cancer for 25 years and am still doing so. In my dissertation for the Ph. D. at Berkeley, I found out that half the mining counties in the Rocky Mountain States had excessive lung cancer during the period 1953 through 1962.

The Butte and Leadville districts were especially high. I also found out that the Hispanic parts of New Mexico had low lung cancer rates for men.

Further studies in New Mexico have borne out this finding. Hispanic men have one-third the lung cancer rates of Anglos; Indians, even less. Which again underlines the problem up there at Red Rock and Shiprock.

I am the principal—

Senator DOMENICI. Dr. Buechley, wait a minute. That underlines the problem up there. What do you mean?

Dr. BUECHLEY. Indians have even less lung cancer than Spanish, who have one-third the rates of Anglos, and here we have this patch of Indians, Navajo Indians, who worked in that mine who obviously have excessive rates of lung cancer.

Senator DOMENICI. What do you conclude?

Dr. BUECHLEY. What do I conclude? I conclude that was a very dab mine.

Senator DOMENICI. Do you conclude they are cancers from the exposure?

Dr. BUECHLEY. There is no other way out of that one. You've trapped yourself in a corner. There is no other explanation.

Senator DOMENICI. You've got yourself hooked by your own statistics on that one?

Dr. BUECHLEY. Yes, I cannot think anything else but that those particular Navajos worked in a mine that was lousy with radiation.

I am a principal investigator of the uranium epidemiology study. From this population of 27,000 people examined by Dr. Valdivia, we have selected a population of 4,100 miners. That is, people who have worked underground a year or more in the Grants district.

We know their ages. We know almost all are males and that 40 percent have Hispanic names. We think about 10 percent are Indians, but we have not checked the BIA lists.

We are finding out that the early miners in the Grants uranium belt came from all over the West, indeed from all over the United States; many with years of previous experience in mines of all kinds.

Some of them smoked a lot of cigarettes. Now I get to that statement. "The maximum amounts of exposure to radiation in the uranium mines today are one-tenth the average amounts 20 years ago."

We are keeping a close watch over the deaths of uranium miners, using both public records and the New Mexico Tumor Registry confidential files. Most deaths are violent, from auto accidents, work accidents, suicide, and homicide.

Next are lung cancers, all among cigarette smokers and almost all among miners who previously worked in other districts and came to

Grants before 1961. Almost all lung cancers, therefore, are among Anglos, not Hispanics.

We reviewed the August 17, 1973, report in the Albuquerque Tribune on the epidemic of lung cancer among Navajos in the Red Rock and Shiprock area. As far as our records went, we found no errors in the newspaper article.

Tumor registry records since that time show the epidemic is over. Few Navajos have lung cancer, and no more have it under 50 years of age. This is contrary to some earlier testimony that there were lots of lung cancers in the Shiprock Clinic after 1974, but I don't know what that—we, as the tumor registry, keep records of all tumors in New Mexico and the Navajo Reservation and we haven't any recent ones.

Dr. Gottlieb?

Dr. GOTTLIEB. Yes; ours, we have two cases that have appeared in the last—one about 3 months ago and one about 8 months ago.

Dr. BUECHLEY. So that particular area needs lots more study.

Senator DOMENICI. Doctor, let me ask you, you've talked about the Red Rock area and the extreme incidence, not otherwise explainable, therefore causation is statistically undeniable by you as an expert.

But you then concluded there is something very peculiar about the mine they worked in. Did they only work in one mine? I didn't think so.

Dr. BUECHLEY. The mine was the Cove Mine, as Mrs. Nakai said, and I do believe that particular place may have had up to 10,000 working levels.

Senator DOMENICI. Where would—

Dr. BUECHLEY. It was in the Lukachukai Mountains. I don't know anything more about it. We need to make a study there.

Senator DOMENICI. Who ran that mine, does anybody know?

Dr. WAGONER. I think Harold may know.

Senator DOMENICI. Whose mine was that?

A VOICE FROM AUDIENCE. Senator, I can find out. Cove is west of Red Valley, about 20 miles up in the mountains.

Senator DOMENICI. Let me ask, Dr. Buechley, Dr. Gottlieb, and Dr. Wagoner, we are not going to come up with anything conclusive here today. Obviously this is the preliminaries to help us draft a bill.

But I am disturbed, because I am hearing rather inconsistent stories from some people I read about and they all look like experts, genuinely interested in helping us solve the problem.

You say it's over and there really isn't any here, epidemicwise, and they say it's just starting. I don't understand. Am I wrong? Are you all talking about different worlds here?

Dr. WAGONER. Two points with regard to that, Senator. I think one must digest the existing published literature, and that's why I said I would make it available.

First: We have not only studies in the United States, we have studies in Sweden, which show that nonsmoking miners exposed to radon daughters are experiencing increased risks of lung cancer.

Indians in the U.S. Public Health Service study who are not in New Mexico are showing increased risks of lung cancer.

Second: I would submit that most of the large-scale uranium mining that took place in New Mexico began sometime around the 1957 area and the population Dr. Buechley is talking about, which did not come from other parts of the Colorado Plateau, arrived at this area

in 1961, or later. We may be on the short end of the epidemic here in New Mexico, but lest we mistake the preponderance of other data, it would indicate it is here to come.

Senator DOMENICI. Dr. Gottlieb?

Dr. GOTTLIEB. I would like to expand on that for just a moment. The miners we are seeing today, that are coming down with lung cancer, are those which worked around 1957 to 1960. This is that 10- to 20-year latency period.

Now we are discovering who these patients are, with good surveillance.

Senator DOMENICI. Do we have a comparable tumor registry, is that what you called it, Dr. Buechley? Do we have a comparable one for the States in the Four Corners area, or are we the only one with it?

Dr. BUECHLEY. Utah also has a statewide registry population based, but Arizona and Colorado do not.

Senator DOMENICI. Dr. Buechley, if they have one from this committee's standpoint, we can invite them here, not today, but would an inquiry give us statistics like you've given us? Could we just ask them for findings on theirs?

Dr. BUECHLEY. I believe so. The Utah registry, we can give you the address, and so forth. They give you rates.

When you say nonwhite in Utah, I think you are saying Indian.

Senator DOMENICI. Probably, yes. We will ask them that, though. We will inquire of them in writing.

Dr. BUECHLEY. I'll get him our latest report from the New Mexico Tumor Registry, which started in 1969, and has been running for 10 years and covers, I believe, about 95 percent of all cancers in New Mexico.

Senator DOMENICI. Let me just ask Dr. Wagoner and Dr. Gottlieb one last question and then unless you have been prompted to say something about what others have said, we will close this panel and have one more and be finished tonight.

Let me ask you this. Dr. Wagoner and Dr. Gottlieb, you have heard both Dr. Buechley and you've heard the clinical doctor here with references to case histories and statistics here and in the State of New Mexico.

I have no reason to not believe what they are saying at this point. The fact they seem to be saying something different about analysis in New Mexico, does that in any way change your interpretations for me or put any other light on it, for the committee?

Dr. GOTTLIEB. No; the information I am offering is my direct clinical experience with these patients and I can document these 16 patients that have developed lung cancer over the last 15 years, the process of working these patients up now and among the 32 cases of silicosis I am following, 2 have cancer of the lung and 1 just recently diagnosed.

Dr. WAGONER. One other point I think is very important, if we look at the Swedish results, look at the data from the U.S. Public Health Service, both of these populations, both of these studies, would indicate nonsmoking uranium miners develop lung cancer, but it takes a longer period before the lung cancer becomes clinically manifest.

If, in fact, the New Mexico population in the Grants area and the New Mexico population in general began mining in the period 1957 through 1960, we are on the premature short end of observing what the carcinogenic response in that population is.

Senator DOMENICI. So now, Doctor, let's talk about your evaluation of what cigarettes do to this, versus other things we have heard.

It seems you are saying then that causally—let me ask Dr. Wagoner this question first.

You are saying that causally cigarettes are promotive rather than causal, is that what you are saying?

Dr. WAGONER. Our data would indicate the coexistent exposures to cigarette smoking and to radon daughters brings on the faster manifestation of the lung cancer. This has been published by Dr. Archer and it has been confirmed independently by Dr. Axelson in Sweden.¹

They observed that among their populations, also. The nonsmoking population came in later. Now whether that's a promoting effect or a cocarcinogen, I really won't get into the mechanism of it.

What this really indicates is that nonsmoking uranium miners do develop lung cancer. They develop it at a later stage. Smoking uranium miners develop lung cancer and lest there be any misrepresentation or misapprehension here, I applaud the nonsmoking and the cessation of cigarette smoking efforts as a good public health measure.

I also believe, however, that we have to control the radon daughter exposure.

Senator DOMENICI. Yes, Dr. Gottlieb?

Dr. GOTTLIEB. It has been documented by several very impressive studies that smoking reduces or decreases the induction period for the appearance of lung cancer by 4 years.

In other words, if you don't smoke and you were in this group, you develop your lung cancer later by 4 years. If you smoke, your cancer was induced 4 years earlier.

Senator DOMENICI. What I hear some saying, at least some underlying current, is that if you smoke, you might have gotten cancer from smoking, so why compensate you? I am not saying I agree with that, but it seems to me that seems to be a defense in somebody's mind here.

I quit smoking, Doctor, and I am getting fat, so you are going to have to treat that, but it was three packs a day, so it was stay skinny or none and get fat.

Dr. GOTTLIEB. I must compliment you. You do look, physically, very well.

Senator DOMENICI. Thank you. It's been since December 31, at 8:15 p.m., a Saturday night at a double-header basketball game. I decided if I could get through that without mooching a cigarette from people I didn't know, that's why I went to the game, I knew no one there, I figured I could be well on the way.

Dr. GOTTLIEB. That's 10 pluses for you.

Dr. WAGONER. Senator, may I make one comment. Since it's been agreed upon at this table that cigarette smoking causes lung cancer, and that radiation causes lung cancer, and it's further been stated we can't make any clinical distinction, pathologic distinction, between a lung cancer that was induced by cigarette smoking or induced by radiation, how can anyone conclude the lung cancers among uranium miners are not induced by radiation. Therefore, lung cancers among uranium miners must be considered as having a radiation etiology.

Senator DOMENICI. Now we have the last one. Dr. Valdivia?

Dr. VALDIVIA. We have presented to you the real facts. We like it or we don't like it, those are the facts. What we are saying, also, is that you live in a place where there is radiation or you don't live there.

¹ See app. 1. item 2, p. 81.

If you work with uranium or you don't work there, or if you smoke or you don't smoke, you are going, in the general population, we are going to have a certain number of cancers, No. 1. No. 2, we are saying that working with uranium increases the chances of having cancer.

No. 3, we are saying that either you smoke, if you do, your chances of having cancer are much higher if you work with uranium.

No. 4, what we are saying is, if you work with uranium and you smoke, you are really in trouble. That's what we are saying.

Senator DOMENICI. Shall we close on that one, or do you want to say something, Dr. Wagoner?

Dr. WAGONER. Unless you happen to be an Indian.

Dr. VALDIVIA. We don't have any smoking Indians.

Senator DOMENICI. Not anybody indicated that in those dangerous times that we have been referring to, that era of extreme exposure and danger, we didn't establish for the record that the Surgeon General had not yet ruled on cigarettes, had he? I don't believe so. Was that on the packages then? No, I don't think.

We have established no mines prohibited smoking during that period of time. They didn't say to miners they should not smoke, isn't that true? Are these OK for the record? I think they are to this point.

Did you have anything else? I appreciate your coming, and I know you had to put together some statistics for us, and we are most grateful for them. Thank all of you.

Earl, will you tell us a little bit about your background?

Alfonso, I understand you want to have Mr. Luvato testify instead?

Mr. LOPEZ. Yes.

Senator DOMENICI. Do you want to go first, Earl, is that the arrangement you have?

Mr. DUNGAN. Yes, sir, that would be fine.

PANEL OF OIL, CHEMICAL & ATOMIC WORKERS INTERNATIONAL UNION

STATEMENT OF EARL DUNGAN, LEADVILLE, COLO., INTERNATIONAL REPRESENTATIVE

Mr. DUNGAN. I am Earl Dungan, international representative of the Oil, Chemical & Atomic Workers International Union.

The OCAW has thousands of members employed in the nuclear fuel cycle across the Nation. Included there in that number are approximately 1,000 members employed in uranium mining and milling in the Lake Ambrosia, N. Mex., area. We also have hundreds of members employed in uranium mining in Colorado and New Mexico. Excuse me, Colorado and Wyoming.

Many miners have contacted leukemia or other forms of cancer, as well as other lung-disabling diseases. It is our position that these diseases are often radiation connected, and many workers encounter serious problems with respect to collecting workmen's compensation for these diseases.

Our union, in regard to workmen's compensation, sees it as a system of inadequate payments for grievous injuries and deaths suffered at the hands of industry.

I feel that the 5-year qualifier in the bill is too harsh. I also feel that the 25-year qualifier for people who have already died before the bill is enacted—

Senator DOMENICI. That is a typographical error. We appreciate your comment because that just makes sure it will get out of there. It probably will be 5 years.

Mr. DUNGAN. That sounds much more reasonable.

We also feel the bill's coverage should include those who contract arthritis, silicosis, and various other diseases that workers have trouble collecting compensation for.

We feel that the miners today do not have a strong and healthy workplace. In many instances, they don't have adequate benefits. We feel a strong and uniform Federal compensation law should be passed. Why should a disabled worker in New Mexico receive less than a disabled worker and his family does in Colorado? Why should one in Utah or Arizona receive less than one does in Colorado or New Mexico?

In any event, workmen's compensation is not the answer. It is not a substitute for a safe and healthful workplace. A safe and healthful work-place can reduce industrial accidents and illness to a very small percentage of the present incidence of workplace morbidity and death.

For those already victimized, compensation payments should be commensurate with the injury and the employer's negligence.

We feel the present standards of permissible doses, levels, and concentrations relating to occupational radiation exposures may be too high. Further research on populations is required for conclusive results.

It is also our position that in the case of radiation sickness and death, that the questions of reasonable doubt should be resolved in favor of the workers. Many workmen's compensation laws exclude worker's suits against employers for ordinary negligence and various other causes of industrial disease and death. The law should provide for satisfactory establishment for workers' rights compensation by resolving cases of doubt in the worker's favor, rather than in the favor of the employers.

The resolution of cases of reasonable doubt in favor of the employee is of particular importance in the case of radiation illness and death because of multiple causes of leukemia and cancer because of their long periods of latency.

I would respectfully request that we be allowed to submit to you in the near future a complete position on this bill by our international union.

Senator DOMENICI. Do you need 15 days?

Mr. DUNGAN. That would be fine.

Senator DOMENICI. We will leave it open for 15 days. If you want to comment, you can just send to it the committee in Washington and it will be made a part of the record as if it was given here today.

Mr. DUNGAN. Thank you very much.

Senator DOMENICI. Alfonso, did you want to say a few words or did you want Mr. Luvato to?

STATEMENT OF ALFONSO LOPEZ, GRANTS, N. MEX.

Mr. LOPEZ. I just want to introduce myself. I am Alfonso Lopez, president of Local 2708, OCAW. I am under a doctor's care. I am suffering from the lungs right now. The diagnosis hasn't been told to me yet. I spent 18 days in the hospital and I don't know yet what I have.

Now I will pass it to Mr. Luvato.
 Senator DOMENICI. Thank you.

STATEMENT OF JAMES LUVATO, GRANTS, N. MEX.

Mr. LUVATO. Mr. Domenici, I would like to welcome you to Grants, N. Mex. I know it has been a long day and I hope we can get this over with. I will make it very brief.

First of all, let's make one thing perfectly clear. That is that the working level we are working in is not safe. It is permissible. I have right here five cases, and I am sure they could have more, of Federal citations for ventilation.

It is good that we are going to have this Federal compensation, but I think most of us miners want our health. We need to work a little with ventilation. I am sure, as you can all see, the doctors that we had up here, the panel, are still not sure that working level is causing this, smoking, nonsmoking, or if the working level we have now is safe. We don't know.

I will support, and our local union will support, the bill. We have to take care of it, the future. We all so need to be concerned about now and may be 10, 15 years from now.

Another thing that I don't think was brought up very clearly was that we are given examinations. I would like to put this on the record, at least for the company that I work for, and that is that we are not given a choice of what doctor to go to. They give us a doctor to go to and that is here in the Grants Clinic. Any other doctor we may seek, if we feel that the doctor, for whatever reasons, we have to pay for it ourselves. These are just some of the problems we have. Today, the problem is not over, I don't think. Let's keep an open mind about that.

That is about all I have to say, Senator.

Senator DOMENICI. Do you have any concern, or does your union, about the fact that you don't get enough information about your physical exams? That has been testified to here. I don't quite understand why they wouldn't just tell you everything. Maybe there is some reason, or does that bother you?

Mr. LUVATO. Let's put it this way. They are the ones, we have to, as miners, take care of ourselves down there, take our own ventilation in. They have a responsibility to take care of us. They hire the ventilation people to come check these radon daughters and they hire the clinical staff. Kerr-McGee just last week donated \$100,000 to the clinic. I do not feel that my—how can I explain it—my best interest is kept by somebody who is donating that type of money when I go in for a physical examination, if you can understand that. We need more clinical and better facilities here, but a lot of us miners are concerned about that. We are told we are given the right to know what our examination is. We are told that we have the right to ask for a radon daughter check, but half of us are not educated enough to know what we are looking at, even if they were to show us the facts. It is the same way with the Grants Clinic. I feel that we would be offered at least a private doctor of our own to go to for these physical examinations. Why the Grants Clinic, I don't know. Like I said, at least we are given a physical. It is better than nothing.

Senator DOMENICI. There is some concern, and I have read about it, and I studied it a little bit before I came to the hearing, that some miners do not cooperate in what is required of them to run a proper test, like sputum analysis, and the like. Do you have any concern about that in the union?

Mr. LUVATO. It is just the same with seat belts, are we all going to buckle them up. What can I say? Sure, you are going to have your miners not take their ventilation with them, and you are going to have people not paying attention. I think we have 95 percent of our miners concerned. Ventilation is an unseen hazard. You do not see it. You can see loose ground, things like this, but you can't ventilation. About 80 percent of ventilation is up to the company because you cannot see it. What is in the air there when they come in and check, if they do come in and check? Why five citations from the Federal? How long was I down there before the Federals got down there and studied them in that working level.

Senator DOMENICI. The point I am trying to make is you were saying you would like a little bit more flexibility, if I understand you right, in the choice of a doctor for a physical exam, so we can feel it was more independent. I am just saying, on the other side, there is a rather serious tradition of some miners, not you, not Alfonso, but some who don't want to cooperate on physicals. I am just asking shouldn't you be espousing that along with asking that you be given more flexibility? Shouldn't you be saying we have to help and cooperate there so we do get good results and so that we know whether we are getting sick or not? Aren't they both kind of together?

Mr. LUVATO. Yes; they are.

We should also make a point in saying that in order to have—you have to have it both ways, you know. There is no way you are going to have good health without taking care of yourself also. We would, some of us feel that our best interests are not being looked after in that regard.

Senator DOMENICI. Alfonso, you don't know what the diagnosis is. I hope it is nothing and that you are well and if we come back here again for a hearing you will feel like testifying.

Mr. LOPEZ. Thank you, Senator.

Senator DOMENICI. To you, Mr. Dungan, get your statement in and we will be glad to receive it. Maybe what we will do is have our staff where we have already agreed to changes, maybe we can get them to your headquarters back there quickly so they won't be going over the same thing. Tell them we have already found these things that have to be adjusted. We will try and do that next week.

Mr. DUNGAN. Thank you.

Senator DOMENICI. James, thank you for coming and good luck to you.

I want to say to the rest of the people here that we are going to adjourn this hearing. We aren't sure whether we will have another hearing or not. If we do, it probably will be in Washington. We will try and make a record and introduce a bill for this year's Congress and before it adjourns it can be heard by the U.S. Senate.

We thank all the witnesses, the press, these people that operate the Holiday Inn, and, in particular, the staff.

We stand adjourned.

[Whereupon, at 7:15 p.m., the hearing was adjourned.]

APPENDIXES

Appendix 1

MATERIAL SUBMITTED BY WITNESSES

ITEM 1. STATEMENTS BY AFFLICTED MINERS GEORGE KELLY, SR., HERBERT TOM, SR., AND JOE JACK, SUBMITTED BY HARRY TOME¹

STATEMENT OF GEORGE KELLY, SR.

I, George Kelly, Sr., age 59, social security No. 525-42-6248, census No. 022,542; wife, Irene J. Kelly and seven children ages ranging from 34, 33, 28, 26, 23, 22, 16, of Beclobita, N. Mex.

I will start off with my first employment, at Shiprock, N. Mex., employer was Arvin Burwell Mining Co., here I spent 8 years from 1942 to 1950. Inside the interior of the mine was a nasty area, smoky, especially after the dynamite explodes we run outside the mine and spend 5 minutes and were chased back in to remove the dirt by hands in little train carts. It was approximately 300 feet from the outside to inside of the mine. The water inside the mine were used as drinking water, no air ventilators, however the air ventilators were used only when the mine inspectors came and after the mine inspectors leave, the air ventilators were shut off. We were not given any rest period or to walk outside the mine, no time even to talk to my fellow workers. It was really force-labor, just like slaves. We spent the whole 8 hours in the mine and sometimes spent more than 8 hours for overtime. What really disappointed me were the mine inspectors when they arrive, only one would stick his head in for about 5 minutes and run to the outside again, other than that, sometimes not one of them would proceed into the mine because of the smoke.

There were no showers we could take after the designated hour (after work or 5 p.m.) and to clean ourselves with after spending the whole day in the mine. We/I had used my own clothing; I bought the hardhat, rubber overshoes, and gloves myself, which the company had not provided me with. We used our own lighting, it wasn't battery-operated flashlight but it was a sort of material used like carbonated carbon (contained with rock and also some form of whitish color added water to make a fizz and lights up, it leaves a form of ash as last material).

The uranium material came into a form of black, yellowish color. We had a supervisor who worked along with us. The supervisor was usually someone who knew the English language and sometimes our own employer told us what to do. We only had a once every year first-aid session held on minor injuries.

During lunch hour we used to eat lunch outside the smoky mine. The maximum wage was \$2.50 per hour.

The second employment was at Cave, Ariz., run by Kerr-McGee Mining Co. Here I spent 1 year from 1950 to 1951. The color of the uranium was whitish yellow to yellow, which I heard is the most dangerous, but at the time we were not informed about the radiation and the hazardous conditions involved. The working conditions were the same, force-labor; ate lunch in the mine, no shower, no clothing provided (hardhat, light, overshoes, gloves, etc.) smoky mines, no air ventilators were used and shut off when they leave, they didn't proceed into the mine (maintained outside), drank water that runs inside the mine, used our hands to remove dirt after the explosion into little train carts, closed back in right after the explosion into the dark smoky mine, spent the whole 8 hours in the mine, sometimes more hours for overtime, reported early for work on time before the designated time, a once a year first-aid session, we had a supervisor and maximum wage of \$2.50 per hour.

¹ See statement, page 28.

My last employment was at Gateway, Colo. There I spent 20 years from 1951 to 1971. This mining company used three names as follows: Mark Shipman Mining Co., Cenpac Mining Co., and Handers Mining Co. Maximum wage was also \$2.50 per hour. The color of the uranium varied from whitish to blackish color. The distance of the mine was about one-half a mile. It was in the same condition as the first two mines I mentioned. We ate inside the smoky mine, no showers after work, drank water that runs inside the mine, no clothing provided (use our own raincoats, overshoes, gloves, hardhats, lights), but there were air ventilators. The smoke was the worst here than the other mines, after the dynamite explodes we removed the dirt with our hands (no gloves) into little train carts. Three times a year first-aid sessions held, and again force-labor.

At this mining company, I operated the drilling machine along with digging around, shoveling dirt into train carts. I don't remember which month it was when I fell down with the heavy drilling machine while I tried to jump a little ditch, the drilling machine fell on my back because the cord got tied around a rock, causing me to fall with the machine. This happened a year before I was terminated from employment. So I became disabled, and was given three choices: (1) Completely terminated from any other work employment; (2) fair employment; (3) hard-labor employment. The doctors at Grand Junction Hospital gave me the first choice and a year later in 1971 I was terminated.

Presently now I have frequently back problems, it hurts almost every day and every night and I visit doctors very often to provide me with medicine.

The doctors at Grand Junction told me of my future problems as frequent backaches, gets tired easy, itchy all over, watery eyes, hearing disability, breathing problems. My hearing disability was effected by the loud mine dynamite explosion. These problems are now affecting me and its too much to deal with. I get sick and my attention around the house really needs work. I get tired easily. I can't work hard like I used to, can't walk more than 1 mile, and I am really concerned about my health.

The duration of time of doctors visits is 1 hour at Grand Junction Hospital and Shiprock Public Health Hospital. Presently I have checkups at Shiprock twice a month and the doctors provide me with medicine.

My health problems bother me and a lot of my fellow workers died and some are in serious conditions, especially the ones I've worked with at Cave, Ariz., and others at Shiprock, Colo., and Gateway, Colo.

The other problems and injuries I've encountered were teeth loss from the smoky mine. My teeth just fell out without hurting and no pains. My ring finger on the left hand is half gone and I was hospitalized for 2 months at Grand Junction for checkups. The cause of loss of half a finger happen when the uranium rock cut it off. It cost me \$300 and was given back half of the \$300.

I'm a nonsmoker and due to my bodily injuries there were no insurance, which I thought there should have been one but none. Like I said above, I paid for the doctors bills of \$300 for finger loss. I think I should have been reimbursed the whole amount or paid more from the mining company. I felt like I had been cheated on this.

By force-labor, I meant we were really forced to work, we've been chased back into the mine right after the dynamite explosion and were told that the company wants to put as many hundred pounds of uranium to load up into the trucks, which haul them off.

Due to the fact that I said I was cheated in a lot of working areas as far as overtime wasn't calculated right, injuries were concerned, I had no educational background but I can understand what the English speaking now say.

I forgot to mention the radiation which I was exposed to. I am really concerned the radiation will affect the health of my children because there were no showers taken after work and no clothing were provided by the mining company.

Remembering the employment conditions were bad and awful, especially the aftereffects which I have to deal with daily.

Now what do you think of me, a radioactive man with a radiation sickness. I would like to ask you to review this—thoroughly, think it over (not once), discuss it (not once) and to come up with a conclusion. I really would like to have my social security disability to be increased due to the world's inflation. Thank you.

STATEMENT OF HERBERT TOM, SR.

My name is Herbert Tom, Sr., and I live at Beclabito, N. Mex. I was born on March 10, 1928, and my census number is 31095. I have eight children, six boys and two girls. They are from ages 16 to 28.

I like to tell my mining experiences and the impact it has had on my life up to the present time. I strongly feel that it has caused a lot of hardships on me and my family.

I started working in uranium mines about 1955 at Shiprock, Colo. Here I worked for Egnar Mining for about 6 years. Here we were all exposed constantly to uranium dust. I was a driver and sometimes had to haul ores out. All of this was hard labor, working eight hours a day.

After drilling and dynamite blasts, there was a long period of time where the mines were filled by dust. We did not have any ventilation or air conditioning system. And we were required to go back as soon as possible after each blast. I mentioned not having any ventilation system. In addition to this, we weren't required to wear safety shoes or any clothing. So usually we wore any clothing to work and came home wearing the same.

I also worked at Gateway, Colo., in the uranium mine and a short time, about 1 year in Oakspring Mines. That was about 15 miles south of here. The working conditions were the same. The maximum wage I received was \$3 per hour in all the mines I've worked.

At Gateway, we had a sort of ventilation system to control fine dust, but these were only turned on when a mine inspector was expected to come. Consequently there were areas in the mines where fine dust was always present, especially after each blast. We were provided no face mask or any other protective clothing. And some of us workers when we got very hot and thirsty we would drink from the underground water. We were never told of the dangers of this. Now that I hear of it, I think back of the things we have experienced.

Because of the constant demands from our Anglo Supervisors, we usually took our lunches into the mines and ate down there. I think this was to save coming up for lunch and back down. Because there was no clean water, we washed our hands in the same underground streams that we drank from.

I remember in Oakspring Mines when we had to load ores with only our hands because there were not enough shovels. So we did most of the loading and separating of ores by hands. We weren't issued any gloves and only a few wore gloves.

Thinking back on all of this and much more, I know I wouldn't had any physical or health problems if our employers had taken a lot of safety precautions. We had little or no safety in the mines I've worked and this is the reason I injured my back. To this day my health problems has prevented me from holding any good job.

My back injury still causes me a great deal of discomfort and pain. I have to get frequent rest by lying down. Even sitting for a short time, I have back pains. My back was injured at Gateway. We had to work two shifts sometimes. We did this one night and on the way back to the surface the car made a sharp curve and I fell off, fracturing my lower back and getting my hips cracked. The only compensation I received at the time was from my insurance.

Today, in addition to my back injury, I also have trouble breathing and hearing. Any small chore affects my back and breathing. Sometimes it seems to get worse. My eyesight gets very weak and I have nosebleeds, due to the loud noise from drilling and blasting. I have lost approximately 50 percent of my hearing.

I am presently taking four different medications every day. One is for my high blood pressure and the others for my back injury and breathing problems. I have to go to the doctor every month for checkups and medications.

I have asked the doctor in Shiprock about my health, but they are either hesitant or don't want to release any information. I think this is because at our hospital in Shiprock, the doctors rotate every year. I'd have one doctor for so many months and he'd be gone and there would be another in his place. These P.H.S. physicians are usually those who have recently completed their internships or have just completed medical school. So this is the way I am at the present time. Back during the mining days we were never told from our Anglo supervisors and employers of the dangers involved or of safety in the mines.

I am bitter about this now. I feel that all they wanted was more money for themselves and no concern for us as employees. I know I would not have had these problems with my health if I had an adequate educational background and more safety regulations were enforced by our employers. Instead my health problems prevent me from any gainful employment. Today with more knowledge about these things and more concern voiced by our Navajo health workers, we have learned about the dangers involved in mining.

Presently I am working temporarily under CETA program at my chapter house. My health problem prevents me from doing any moderate labor. The reason I got this temporary job is because my social security disability benefit cannot support my wife and three dependent children; two children are in high school and one is in college.

In addition to daily living expenses (food, clothing, and shelter), I would like them to receive a good education and a good healthful life.

I feel strongly that these health problems that I mentioned are a result of my mining experiences because I do not have a history of smoking nor do I use alcohol.

I might add that they are saying there are a lot of uranium deposits under our land in Beclabito and the Red Valley area. I wonder if they are going to treat our people and our children the same way. We should think about these before any agreements are signed. Are we going to suffer again while the mining companies get rich? These are some of the questions that need to be answered before we all make the same mistakes again.

I hope some of the things I have mentioned will be heard by our leaders and actions taken. Many of our Navajo people have suffered, not only from mining uranium but of lack of good education, good hospitals, homes, and many others. The white man put us on this reservation thinking it's worthless but now they see all kinds of resources. Are we to suffer all over again?

STATEMENT OF JOE JACK

My name is Joe Jack, age 78, social security No. 525-40-8096, census number 029,885, wife deceased (Mary Jack) and have seven children of Beclabito, N. Mex.

I'm of age now and can hardly remember because these were the times when I was strong and young but I'll tell you what I can remember, I may not remember the names of the mining company but I'll try.

I started my employment sometime back in the early forties or later thirties. With my first employer as a mining company (I don't remember whom it was run by) at Oakspring, Ariz. (by Cave, Ariz.), spent 4 years there with my maximum wage of 50 cents per hour.

My fellow workers and I used to spend 8 hours in the mine and sometimes more than 8 hours, but I remember we weren't paid for overtime. The inside of the mine was smoky and we were forced to work. There were no clothing provided by the company, we used our own hardhats, overshoes, gloves, and no coats or raincoats. There were no showers to clean ourselves with after work. No first-aid sessions were held, and there were no safety lectures about the mine or smoke. We had drinking water in the mine but it was the water that runs inside the mine. There were no air ventilators here and the mine inspectors used to just look in from the outside and only sometimes one of them would check around, spending only less than 5 minutes and run back outside again. We had no supervisor, only one of the white men would come in and tell us what to do. Sometimes during lunch hour or for only 30 minutes we ate lunch outside the mine and sometimes inside the mine, this is when the dynamite explosion takes place, but usually right after we finish eating, we were chased back into the mine to work again, to remove the dirt with our hands, without gloves.

The second employment took place at Rico, Colo., by Rico Mining Co., for 2 years at a maximum wage of \$1 per hour.

The working conditions were the same as the mining company at Oakspring, Ariz., but it was only the maximum wage that made a big difference. I spent 8 hours in the mine plus overtime, again no breaks for rest, no showers, no provided clothing, no first-aid sessions, smoky mine, no air ventilators, mine inspectors only spending a few minutes in the mine and are inside the mine.

The third employment was at Shiprock, Colo., which is now run by Arvin Burwell Mining Co. Here I spent 10 years and with a maximum wage of 50 cents per hour. The only big difference was that this mine had an air ventilator, which was only turned on when the mining inspectors were on schedule. Again spending 8 hours a day in the mine plus overtime, no shower, the same as above.

The last employment at Gateway, Colo., I think it was called the October Mining Co. The wage was 50 cents per hour. Again the mine was air ventilated and the same working conditions as above. It took me 4 years.

Here, I got handicap, my right foot and one-half of my big toe is gone, chopped off by the uranium inside the mine while trying to remove dirt after the dynamite had gone off. I was hospitalized for 2 months, no insurance at the time, so I paid my doctor bills by working.

Then later, my knees got infected again by the same cause trying to remove dirt after the dynamite exploded. Again, hospitalized.

Presently now I have weak knees, my feet get cold and sometimes more during winter, have breathing problems, cough up gook every now and then, frequent headaches, and get tired very easily. I visit the hospital to obtain medicine from the Shiprock Public Health Service to cure the pains but they are less strength.

Most of my fellow workers are gone (died) and some are still hospitalized, and others trying to get the best out of life like me. Although I am old, I think I should be getting a higher pay of social security benefit although I've retired and us with a compliment with the doctors—to be terminated from the mining employment.

I have no educational background. I think I've been cheated on my overtime, my hospital visits, and no insurance in value. Maybe there was some insurance, but were not told of it. And we were not informed of any safety hazards that we really needed in the future and there were no word of first-aid sessions. Let me ask you, how would you like to suffer with all the injuries I've received? If you were in my shoes right now—you know it is not fair at all.

This is all I have in mind and all I can remember. Please read this thoroughly before coming up with a nice, meaningful result.

Thank you very much.

ITEM 2. HEALTH HAZARDS FROM RADON DAUGHTERS IN SWEDEN, BY OLAV AXELSON, M.D., AND CHRISTER EDLING, M.D., DEPARTMENT OF OCCUPATIONAL MEDICINE, UNIVERSITY HOSPITAL, LINKOPING, SWEDEN, SUBMITTED BY DR. JOSEPH K. WAGONER*

Due to increasing energy costs, there is a need for better insulation of dwellings along with attempts to eliminate uncontrolled ventilation by sealing of windows, doors, etc. As a result indoor concentrations of radon and radon daughters will increase and the lung cancer risk, known to be present in uranium and other mines, might become an important health hazard also to the general population.

Measurements of radon concentrations in Swedish dwellings in the 1950's indicated average levels ranging from 0.5 to 1.9 pCi/l, wooden houses showing the lowest levels, concrete houses the highest concentrations and brick houses were inbetween.^{1 2} More recent studies have shown indoor concentrations to be further increased and levels in the range of 1-10 pCi/l of radon seem to be rather common in the mid-1970's.³ There is a great variation in the occurrence of radon, however, depending on the type of house, the construction material and the air exchange through ventilation. Houses build of light weight concrete containing alum shale seem to reach particularly high levels of radon and its daughters.

PILOT STUDY ON LUNG CANCER AND RESIDENCY

In order to elucidate the possible etiological role for lung cancer of exposure to the low levels of radon and its daughters as present in dwellings, a case-referent (case-control) study was undertaken, comparing cases of lung cancer with referents (controls) in regard of residency in different types of houses.⁴ Wooden houses without a basement, stone houses with a basement and other types of houses ("mixed type") were taken as a crude measure of exposure to different levels of radon and daughters.

For various reasons this pilot study was restricted to only comprise people in typically rural areas. Urban populations are less homogenous in many respects, and the variety of occupations among urban people tend to influence the time spent indoors and therefore the actual exposure to low levels of radon and its daughters. Furthermore, industrial workers may be exposed to carcinogens in the work environment, which might overshadow a possible, radiation-induced lung cancer hazard. In rural areas the people work in farming, forestry or related services jobs, most of them associated with a great deal of outdoor work. Usually, the rural population is stable, people having lived for a considerable time of their lives in the same houses, where they also spent their last days, thus justifying type of residency as a measure of exposure. Moreover, many rural areas of Sweden have the suitable mixture of houses built of various materials to allow for the case-referent study to become efficacious, whereas urban houses very often are

*See statement, page 57.

¹ Hultqvist, B.: Studies on naturally occurring ionizing radiations, with special reference to radiation doses in Swedish houses of various types. Kungl svenska vetenskapssakademien handlinrar. 4:e serien, Band 6, Nr 3, Stockholm, 1956. Almqvist & Wiksell Boktryckeri AB, Stockholm, 1956.

² Ionizing radiation: Levels and Effects. Vol. 1. United Nations, New York, 1972.

³ Svedjemark, G. A.: Radon in dwellings in Sweden. Presented at the third symposium of Natural Radiation Environment, Apr. 23-28, 1978, Texas.

⁴ Axelsson, O.; Edling, C.; and Kling, H.: Lung cancer and residency—a case referent study on the possible impact of exposure to radon and its daughters in dwellings. Scand. J. Work Environ. Health 5 (1979) No. 1.

of the "mixed type" or built of stone, whereas wooden houses, i.e. the only possible reference category of dwellings, are very few. The low lung cancer incidence among rural residents is a problem, however, and tends to decrease the information of the study by the limited number of obtainable cases within a reasonably restricted area for survey.

Materials and methods

Consulting the local registries of deaths and burials in 28 parishes in the counties of Örebro and Östergötland, 76 cases of lung cancer in ages above 40 of both sexes were obtained. Referents (controls) were those deceased individuals having entered the registries of deaths and burials in the three positions before and after each case, but cancer cases and individuals less than 40 years old were excluded, making the sum of referents 365. Out of these primarily selected subjects, 37 lung cancer cases and 178 referents were rural residents, whereas the remaining individuals were excluded as having lived at a street address, i.e., in the small towns and suburban areas of the parishes and therefore they were not accepted for reasons already discussed.

For the assessment of exposure, all houses were visited by the same investigator and classified into the aforementioned three categories (0=wooden house without a basement; 1=mixed type house with or without a basement; 2=stone house with a basement). Particularly the rural wooden house without a basement is quite characteristic and therefore easy to recognize, whereas some misclassification between categories 1 and 2 might have occurred. Other factors than type of house apparently influences the actual radon and radon daughter levels, e.g., type of heating (stoves or central heating; stoves providing a good thermal ventilation) but could not be accounted for; nor was there any information about how long a time the individuals had lived in the houses. However, lack of information in these regards would rather wipe out any differences between cases and referents, and therefore tends to make the study conservative.

Results

Table 2* provides the number of cases and referents in age-sex strata and exposure categories along with various estimates as calculated according to principles given by Mantel and Haenszel⁵ and by Miettinen.^{6,7,8} There is a tendency toward an exposure-response relationship (applying the Mantel-extension⁹ of the Mantel-Haenszel test one gets $\chi^2(1) = 3.96$; $p < 0.05$, two-tailed). A comparison of the clear cut and extreme exposure categories, 0 and 2, results in a Mantel-Haenszel point estimate for the rate ratio of 5.4 (approximative 90 percent confidence interval 1.5-19; omitted in table 2).

Smoking habits could not be fully accounted for but medical files provided information about 13 referent subjects (12 males, one female); two men were nonsmokers and three were smokers of those having lived in wooden houses versus three nonsmokers and three smokers (and one exsmoker who stopped 15 years prior to death) in categories 1 and 2. Although these figures are very small, the distribution is quite similar and there is no indication towards differences in smoking habits among residents in wooden and other types of houses; nor should that be expected from general knowledge about this rural population. Eight of 12 male cases, for whom information was available, were smokers, just as expected, but it should be noted that relevant information about smoking habits in the background population can only be obtained from the referents.

Discussion

The applied exposure classification is a very crude method for estimating exposure to radon and its daughters and tends to make the study conservative. Therefore, although the study is of a pilot character, the results nevertheless support the hypothesis that radon and radon daughter exposure in dwellings might be of pertinence to the question of the etiology of lung cancer. Obviously, the well known urban-rural gradient phenomenon in lung cancer incidence could be easily explained on the basis of exposure to radon and daughters, since rural houses in most countries tend to be more "primitive", therefore having a better natural

*Retained in committee file.

⁵Mantel, N. and Haenszel, W.: Statistical aspects of the analysis of the data from retrospective studies of disease. *J. Natl. Cancer Inst.* 32 (1959) 719-748.

⁶Miettinen, O. S.: Components of the crude risk ratio. *Am. J. Epidemiol.* 96 (1972) 168-172.

⁷Miettinen, O. S.: Standardization of risk ratios. *Am. J. Epidemiol.* 96 (1972) 383-388.

⁸Miettinen, O. S.: Estimability and estimation in case-referent studies. *Am. J. Epidemiol.* 103 (1976) 226-235.

⁹Mantel, N.: Chi-square tests with one degree of freedom: extensions of the Mantel-Haenszel procedure. *Am. Statistical Ass. J.* 58 (1963) 690-700.

ventilation, or are built of wood to a greater extent than urban dwellings, as in Sweden. Rural people also tend to be outdoor workers in farming, forestry, etc., which further decreases exposure to radon and daughters in the indoor atmosphere. In Sweden, urban lung cancer rates among men are about 4 times and among women about 2.5 times as high as the rural rates which is too much to be explained because of the different smoking habits in urban and rural populations,¹⁰ nor have urban areas in Sweden been heavily polluted. This aspect of a fairly small difference in air pollution between urban and rural areas in Scandinavia has in fact been a matter of concern in evaluating the impact of air pollution on lung cancer morbidity by a WHO scientific group.¹¹ Moreover, Swedish traffic became intensive quite recently or in the late 1950's, not providing much latency time for a higher urban lung cancer incidence to be present already in the 1960's.

TENTATIVE COMPARISON OF EXPOSURE-RESPONSE RELATIONSHIPS IN VARIOUS POPULATIONS

From table 2 it is possible to derive incidence rates for ages above 50 (age limit chosen for comparability) among male and female residents in wooden houses and other types of houses as given in table 3. Similarly, lung cancer rates can be obtained for zinc-lead miners and non-miners in ages above 50 in the parish of Hammar,¹² table 4. As shown in the tables,* the overall lung cancer rates are quite similar in these two rural populations. Another population, women above 50, is taken from the official statistics of Sweden in 1972. Assuming the incidence rate of lung cancer to be the sum of the rates for smokers (or for various smoker categories) and nonsmokers (here taken as never-smokers), it is possible to calculate also the approximative rates of these various subpopulations; of table 5. Some basic assumptions are required, however, i.e., rate ratios of 5-8 for lung cancer among smokers versus nonsmokers. The relatively low rate ratios are chosen as smoking tends to be less heavy in rural populations and among women. Furthermore, based on various source materials, assumptions or estimates about the frequency of nonsmokers in the different populations have to be made (cf. ref.^{12 13}).

Then, it is of interest to continue with calculations of the number of lung cancers per dose (taken as working level months, WLM) and million person-years at observation, a concept, which has been applied in studies of radiation-induced cancers (cf. ref.^{14, 15}). Since various smoking habits create considerable difficulties in this context, the comparison is here restricted to nonsmokers only.

Exposure levels to radon daughters in dwellings and work places are influenced by ventilation and are very difficult to estimate, particularly decades ago, but radon levels are assumed to have been about 30 percent of those given in table 1,* and exposure to daughters correspondingly somewhat lower because of "effective" natural ventilation. In this way, lifetime exposures (during 75 years) can be suggested and, luckily, the calculations behind the results of table 5* are relatively insensitive to reasonable alternatives to the various assumptions, which have been made.

Although based on more or less uncertain assumptions and estimates, the exposure-response calculations in table 5 suggest that background radiation from radon and its daughters could explain a good deal of lung cancer morbidity, particularly among nonsmokers, but perhaps also among smokers, namely if smoking plays its major role as a promoter rather than being an initiator of lung cancer. Interestingly, too, the calculated numbers of lung cancers per WLM and million person-years at these low doses are not inconsistent with other similar estimates from mining populations,¹⁵ when considering the possible effect of low doses obtained at low exposure rates.

¹⁰ Axelson, O.: Aspects on confounding in occupational health epidemiology. *Scand. J. Work Environ. Health* 4 (1978) 85-89.

¹¹ World Health Organization. Health hazards of the human environment. Geneva, 1972, p. 29.

*Retained in committee files.

¹² Axelson, O. and Sundell, L.: Mining, lung cancer and smoking. *Scand. J. Work Environ. Health* 4 (1978) 46-52.

¹³ Cederloc, R.; Friberg, L.; Hrubec, Z.; and Lorch, U.: The relationship of smoking and some social covariables to mortality and cancer morbidity. Parts 1 and 2. Dept. of Environmental Hygiene, Karolinska Institutet, Stockholm, 1975.

¹⁴ Lundlin, F. E.; Wagoner, J. K.; and Archer, V. E.: Radon daughter exposure and respiratory cancer; quantitative and temporal aspects. Report from the epidemiological study of United States uranium miners. Joint Monograph No. 1, 1971, NIOSH and NIEHS, Springfield, Va., 1971.

¹⁵ Archer, V. E.; Radford, B. P.; and Axelson, O.: Radon daughter cancer in man: factors in exposure-response relationships. Proceedings of Conference on Lung Cancer Epidemiology and Industrial Applications of Sputum Cytology, Nov. 14-16, 1978, Golden, Colo. Publ. Colorado School of Mines, Golden, Colo.

Appendix 2

STATEMENTS AND LETTERS FROM INDIVIDUALS AND ORGANIZATIONS

ITEM 1. LETTER FROM HARRY C. BARNES, BENSON, ARIZ., TO SENATOR PETE V. DOMENICI, DATED SEPTEMBER 6, 1979

DEAR SENATOR DOMENICI: I am writing in regard to the additional information that was requested concerning the uranium mines in Grants, N. Mex. My son, Harry R. Barnes,¹ attended the meeting in Grants, N. Mex., on August 30, 1979.

I started working for Homestake Sapin (later named United Nuclear Homestake Partners) at section 25, January 1958. I spent most of the first year on the surface. I went underground in 1959, and worked part of the year as a miner developing ore reserves. Then I went into supervision. I was engaged in all phases of mining in the ensuing years. At the beginning of our development of ore reserves at section 25, it was done rather haphazardly. Some of us had past experience in mining and safety, but none of us had any knowledge of radon gases or radiation. We did have some safety standards for mining but can't remember of any standards set up for either dust control, dust count or anything in the ways of measuring radiation or allowable exposures from either Federal, State, or the company. The best I can recall, it was in the middle 1960's before we were given any radiation standards to go by. The first figure I can recall was a 10 working level allowable. Even when we were told of excessive working levels of radiation, I don't recall getting any closure orders, but was told to try and improve our ventilation. I had been told by the people in charge of ventilation that the remote area we were working was well over the 100 working level and had better remove our people from there or strive toward getting better ventilation to bring the high radiation count down. This was all done orally and I don't recall any written records or closure orders given to me which required the closing of any of the areas. None of us realized the seriousness of radiation at this time.

Later when the radiation standards were set and records were kept, we were schooled on proper ventilation and radiation. By then we were also getting inspections by both the State and Federal inspectors, and of course our own company inspector, too. Ventilation schooling continued and is still in operation today. During this period of very little, if any control of radiation, we who were there were subjected to extreme radiation counts and I was in constant and almost continuous contact with it. These are some of the men that had worked in the same mine, same area, same amount of working time, have all passed away due to cancer: L. Heppler, R. Rindles, C. Ratliff, H. Yates (also had some Colorado Plateau exposure), A. Rheinschmidt (recently passed away), E. W. Davis is still alive but has had about one-third of one lung removed and about one-half of the other one. His case is terminal.

I, myself after many years of shortage of breath and finally having to quit my job because of doctors orders, because of my inability to do my job and I was taken off of payroll September 12, 1975. (Doctors orders—Dr. Basil Wang.) For about 2 years I received \$960 a month from my long-term disability insurance. During this time I applied for social security disability and was refused. I'm enclosing denial report from social security. When social security refused me, my long-term disability insurance from the company also cancelled me out. I have had no income or compensation of any kind since April 1978. I was forced to sell my home in Grants, N. Mex. in order to survive. In May of this year, 1979, I began drawing my retirement check of \$271.03 a month and that is what we are presently living on. On February 14, 1979, I become ill, I was extremely short of breath, and finally ended up going to the Veterans Administration Hospital in Tucson, Ariz.

I was given an examination, X-rays, and medicine. Before I left that day, the doctor told me there was something unusual on the lower lobe of my left lung and was told to come back for further X-rays. After many X-rays and a bronchoscopy for

¹ See statement, page 11.

biopsy samples, it was determined that I had a tumor and that it was cancerous. Since then I have had the lower left lobe of my lung removed and completed 26 radiation treatments at the University of Arizona Medical Center.

I am now at home on medication trying to compensate the effects of radiation done to that part of the remaining left lung. Progress hasn't been too good as of yet. I have an appointment September 10, 1979 at the Veterans Administration Clinic for pulmonary and one on October 18, 1979 with oncology to determine if all the cancerous area was removed or killed by radiation. On one of my visits to the University of Arizona Medical Center, where I received my radiation treatments, I asked the doctor if he had any idea how long I could have had this tumor, he gave me no definite time but was confident in his own mind that it has probably been there for 2 or 3 years at least, but went undetected. I explained to him that during the past 3 years my breathing was getting worse and I was having a high rate dysentary and skin flushing (turning red and feverish). He said this was possibly caused by the tumor secreting fluid and getting into my body and filling my lung also. I also had increased trouble controlling my blood pressure. I also asked the doctor at the pulmonary clinic if there was any way of determining whether this cancer was or could be connected to uranium and he said it was definitely a uranium cancer as far as he was concerned.

I am sorry I was unable to attend the meeting you held in Grants, N. Mex., but my condition wouldn't allow it. I hope what information I am sending you will be of some help and if there is any information I can provide you with please let me know. I certainly appreciate your effort toward helping all of us who were subjected to these hazards. I will be deeply grateful the rest of my life knowing someone cares. Thank you very much.

Sincerely yours,

HARRY C. BARNES.

ITEM 2. STATEMENT OF RAFAEL MOURE, DENVER, COLO., INDUSTRIAL HYGIENIST, OIL, CHEMICAL AND ATOMIC WORKERS INTERNATIONAL UNION

My name is Rafael Moure, industrial hygienist of the Oil, Chemical and Atomic Workers International Union. OCAW represents thousands of members employed in the nuclear fuel cycle, extending from uranium mining and milling to fuel reprocessing—25 percent (a total of 10,000) of uranium miners and millers in the United States are represented by OCAW. Among them is OCAW Local 2-708 of Grants, N. Mex. representing the largest concentration of underground uranium miners in the country. A significant number of uranium miners represented by OCAW have contacted cancer—leukemia and debilitating chronic respiratory diseases. As is well known, these diseases are often radiation connected. Miners so affected are having serious problems obtaining workmen's compensation in every State where uranium is mined.

Before proceeding with our comments on the proposed "Uranium Miners Compensation Act of 1979", OCAW would like to present our general views about compensation. We regard worker's compensation in general as a system of inadequate payments to workers for grievous injuries, diseases and deaths suffered in the hands of industry. Worker's compensation can never be a substitute for prevention programs of occupational accidents and disease. OCAW believes that vigorous enforcement of the Federal Mine Safety Act of 1977 in uranium mines is a giant step forward to prevent unhealthy working conditions and thus reduce the incidence of morbidity and death. However, the plight of miners already affected by unhealthy working conditions in uranium mines demands compensation payments truly commensurate with the injuries and the employers' negligence.

EXTENT OF THE PROBLEM

The Federal Government estimates that as many as 30,000 to 40,000 workers have been involved in underground uranium mining since the 1940's.¹ The U.S. Public Health Service conducted a "followup" study of 3,500 underground uranium miners. This study showed a five-fold increase risk of contacting lung cancer among this population. The predicted number of lung cancer deaths for a group this size is 40; however, the Public Health Service found 200 cases in this 3,500 group.²

¹ Wagoner, J. K., testimony on the Senate's Health Subcommittee, June 20, 1979.

² Lundin, F. E.; Wagoner, J. K.; and Archer, V.: Radon Daughter Exposure and Respiratory Cancer. NIOSH and NIEHS joint monograph No. 1, NTIS, Springfield, Va., 1971.

The Mine Safety and Health Administration estimates that as many as 50 persons who mined uranium in the United States before 1965 die each year of radiation induced lung cancer.³ In addition, in 1976 the fatality rate of underground uranium miners was almost twice the fatality rate of other metal and nonmetal underground miners (0.99 vs. 0.57 deaths per million working hours).

The most recent update of the uranium miners' study described above concluded that nonmalignant chronic respiratory diseases (i.e., pneumoconiosis, fibrosis, emphysema, pneumonia, etc.) are almost as important as lung cancer and accidents as causes of death in the group studied.⁴ OCAW has direct experience with both lung cancer (at least 18 confirmed cases since 1964), other respiratory diseases among uranium miners (undetermined number) and fatal accidents at the Kerr-McGee Uranium Mine (Grants).

FEDERAL COMPENSATION EFFORTS

Since the Federal Government failed to provide adequate protection against the known risks of lung cancer, respiratory disease, and accidents to workers mining uranium ore, it is just fair that the economic brunt of miners affected be carried out also by the Federal Government. Senator Domenici has drafted a second version of a "Uranium Miners Compensation Act." The previous 1978 version of the proposed compensation act limited compensation to miners who have worked in uranium mines more than 10 years. It restricted awarding benefits if there were "mitigating circumstances" such as "heavy smoking and other environmental and occupational factors." In addition, it called for a system of validation of State compensation programs for radiation induced disease. OCAW opposed vigorously the 10 year cutoff and the restriction of benefits based on vague "mitigating circumstances", as well as the validation of State compensation programs by the Federal Government.⁵ OCAW is pleased to see that some improvement on these three matters is apparent in the 1979 version of the Uranium Miners Compensation Act. The cutoff date is decreased to 5 years and the issue of "mitigating circumstances" was dropped from the new version as well as validation of State programs.

SPECIFIC COMMENTS ON URANIUM MINERS COMPENSATION ACT OF 1979

(1) Since the number of accidents in uranium mines has been substantially greater than other underground mines, disabilities or death due to accidents should be included in the compensable diseases with radiation induced and latent dust induced disease.

(2) The 5-year cutoff to qualify for benefits is still too harsh considering the high rate of accidents in the first 5 years of work. It is also possible to be exposed to very high concentrations of radon daughters in a few months. Accordingly, OCAW suggests a cutoff work period of a year to qualify for benefits.

(3) In section 4(c)(5), OCAW recommends that the miner who died before the implementation of the act need not have been employed 25 or more years. A more equitable period of employment should be 10 years. The proposed 25 years is unfairly restrictive to permanent partial disability.

(4) In section 5(a)(1), the benefits should be at least two-thirds of the monthly payment of an average uranium miner in 1979. This is the most common schedule of payments in State compensation systems. Fifty percent of the current GS-2 monthly salary is ridiculously low.

We appreciate the opportunity to present these comments at this hearing.

Sincerely,

RAFAEL MOURE, *Industrial Hygienist.*

ITEM 3. LETTER FROM HAROLD W. TSO*, WINDOW ROCK, ARIZ., DIRECTOR, ENVIRONMENTAL PROTECTION COMMISSION, NAVAJO NATION

DEAR SENATOR DOMENICI: We appreciate the opportunity to address uranium mining impacts on older Navajo workers.

³ Stafford, S. Mine Radiation Control Efforts Are Waged in a Variety of Fronts. *Mine Safety & Health Magazine*, USDOL, vol. 4, No. 1, March 1979, pages 2-28.

⁴ Archer, V., et al., *Respiratory Disease Mortality Among Uranium Minors. Occupational Carcinogenesis. Annals of the New York Academy of Sciences*, Volume 271, 1976.

⁵ Letter from A. Mazzocchi to Senator Pete V. Domenici, May 10, 1978.

*See statement, page 39.

We are concerned about the significance of two separate but related incidents which occurred during the course of our work. May we request that they be studied and, if acceptable, incorporated in your proposed legislation on uranium miners benefits?

First, you will recall that in testimony submitted by Harry Tome,¹ Navajo Tribal Council Delegate from Red Rock, Ariz., he referred to an incident involving uranium radioactivity and a Navajo home. We would like to expand briefly on the incident reported on pages 3 and 4 of Mr. Tome's submitted testimony.

As the result of an article on lung cancer, Navajo uranium miners and radiation, written and reported by Molly Ivens in the New York Times, a CBS film crew was dispatched to Red Rock to obtain a story for television.

During an interview with one of the miners, one of our technicians discovered gamma radiation emanating from the former miner's home with a geiger counter. We estimated a gamma exposure which is more than 20 times the current permissible level of 5 roentgens per year. A second house within 100 yards also exhibited a similar exposure level. In addition, we learned that these two homes had been built with rocks discarded during uranium mining operations. These rocks were classified as "waste ore" (i.e., ore that does not contain sufficient uranium as to warrant its sale). Mr. Senator, this discovery and its significance causes us to ask:

If you are concerned about the impacts of uranium and its radioactive daughters on the health of miners within a mining atmosphere, then consider the health of Navajo miners and their families who reside in homes constructed of uranium ore that had been classified as "waste ore"?

The prospect of radon gas and its daughters as well as high gamma radiation exposure within a home is unpleasant. We believe that there are at least nine areas of the Navajo Reservation where early uranium mining and extraction took place. We would like to implement a survey that would identify homes built with uranium waste ore; determine annual gamma exposure levels for each home; identify a resident population who are thus unnecessarily exposed; and obtain information on occupants whose health problems may be related to uranium mining or its products. Sadly, Mr. Senator, while we have the personnel we lack the funds to collect this vital data. If Federal funds can be identified and isolated to implement the aforementioned survey, we would be very willing to perform the survey and report its results to you or appropriate officials.

Second, during demolition of the mill building on the premises of the abandoned uranium millsite at Shiprock, N. Mex., an estimated \$100,000 or approximately 25 percent assay U_3O_8 dust was discovered between two layers of plywood. It appears that the original roof was constructed of 4 by 8 sheets of plywood, three-quarters of an inch thick. When this roof became weathered, it was replaced with a second similar cover of plywood that was placed over the original roof. The second roof was covered with tarpaper and gravel. The entire roof was adjacent to the mill roaster whereby uranium precipitate was oven-dried. We believed that the uranium dust was vented out toward and deposited on the roof. It appears that the U.S. Atomic Energy Commission who performed required and periodic radiological inspections were not cognizant of and did not include the likelihood of this hazard in their inspection regimen. Thus, Mr. Senator, the question is: What about workers within and without the mill facilities who relied on this milling company and USAEC for health and safety?

Finally, Mr. Senator, the location of medical centers to perform medical diagnoses and treatment of uranium trauma is of interest to impacted Navajos. You are aware of the geographic magnitude of the Navajo Reservation and that travel from within such a large country to a medical center may impose financial and personal constraints on Navajos desiring medical relief. Thus, may we request that local medical center(s) such as those in Shiprock (N. Mex.) or the Kayenta (Ariz.) Cancer Project be used?

Mr. Senator, we are most grateful for the influence you exercised in convening this hearing of the U.S. Senate's Special Committee on Aging here in Grants, N. Mex. We commend you and the committee staff for a well organized hearing. If you or the committee staff desire additional information, we will be happy to assist you. I am attaching a Xeroxed copy of Mr. Tome's statement.

Sincerely yours,

HAROLD W. TSO.

¹ See statement, page 28.

ITEM 4. LETTER FROM DOTTIE JEAN RINDELS, TULSA, OKLA., TO SENATOR PETE V. DOMENICI, DATED DECEMBER 2, 1979

DEAR MR. DOMENICI: I made a trip to Grants N. Mex., for the Thanksgiving holidays. I have a sister who lives in Bluewater.

I lived in Grants up until 2½ years ago. Mr. Domenici, I am one of the women who was left a widow with two very small children in 1969. My husband died of lung cancer. There were six of those men who died around the same time my husband died.

In my visit to Grants, I learned there are 25 more men who are dying from the mines. Some of these men I know. My husband worked with some of them. I felt sad for these men. But I felt sad for their wives, too, because I know what they are going through. Their husbands were big strong men at one time, such as mine was (211 pounds). But after the cancer took its toll and in and out of the hospitals 6 months when they brought his body to Grants from the Bataan hospital (he weighed 95 pounds). I'm, the one who watched my husband die for 6 months after surgery. I watched him dwindle away to nothing, knowing, there was nothing I could do for him, and then having him die in my arms that night at the hospital. Yes, Mr. Domenici, I know and I feel for those women in Grants who are going through what I went through.

Just about a month before my husband took sick, he went and took his physical for the mines, such as they require. I believe at that time it was every 6 or every 3 months. I'm not sure. But nevertheless, he passed with flying colors. But his coughing kept up—he would cough himself clear down. I finally talked him into going to a doctor in Grants. They said he had pneumonia, gave him a handfull of pills and told him to take a few days off from work. Those pills didn't help his cough a bit. So finally I called Albuquerque and got me the best doctor in the world, Dr. Mary Mostyn who within 3 days found my husband's problem. He was eaten up with cancer of the lungs.

I was left with two babies, one 14 months old and one 2½ years old. He had three more children by a former marriage that was also left without a father. My husband wasn't cold in his grave until his ex-wife sued me for his insurance from Kerr-McGee. I had to get a lawyer. So I got the biggest crook in Albuquerque. Not only did he take the insurance money, but he also took the money from Mountain States Investment Corp. that paid off our home after my husband died. That trial took 3½ years, in which I never even knew when the trial was—a friend informed me of it.

I then went to his office and he reimbursed me with all my papers he had me bring him over the years he dragged this case out.

Mr. Domenici, I walked out of that crook's office with an arm load of papers and \$1,400 in which I owed all that on bills after my husband's death. That lawyer is none other than John Hogan Stewart. In Albuquerque, I understand I'm not the only person he's cheated on this same sort of deal.

I realize this was 10 years ago, but I still have the hate in my heart for that man as I had the day I walked out of his office because I feel like I was screwed out of what my husband gave his life for. It hasn't been easy trying to raise these children alone with no help at all. Yes, I truly believe these widows and these children that were left due to lung cancer or any other illness that was caused from working in the mines are due something. I'm sure I'm not the only widow from Grants who feels this way. I'm sorry I wasn't in Grants the day of the hearing at the Holiday Inn. Pearl Nakeis was a friend of mine and also Dennis Heppler. They had his father's funeral the day my husband died. It was like a nightmare around Grants when these six men died.

And my two little babies tugging on me asking me when was their daddy coming home. Mr. Domenici, you don't tell a child their daddy isn't coming home because he's dead. They still looked out the window and watched for the white car 2 years after his death.

No, Mr. Domenici, no one told my husband of the danger or the conditions. I feel if they had, rest assured my husband would have found something else long ago. What I have never been able to understand is why were these men all passed after their physical examinations. That is something that has bothered me ever since these men have died.

Those concerns didn't just appear over night. I was told, while in Grants, there are 25 more men with cancer. I know some of those men, Mr. Domenici. My husband worked with some of them. I guess those women will all be widows before long too. And of course the mines will send a bouquet of flowers and tell how sorry they are. Mr. Domenici, those flowers don't feed those children and pay the bills that are left behind or the funeral bills, either. And in my case I had two that had to be paid. I also lost my father right after I lost my husband. Yes, Mr. Domenici,

I'm bitter at the mines. I'm bitter at the doctors. But most of all I'm bitter at that lawyer. I hope he has slept real good these past 10 years, although I don't see how he has. He caused me to have to give up my home in Grants because I couldn't pay for it because he kept the money the insurance sent me to pay it off. He also had me endorse the check the insurance sent me from the mine over to him. He said it would be safer that way until after the trial—the trial that I never attended and was informed of.

Yes, Mr. Domenici, I honestly believe the widow's and children of these cancer ridden miners deserve something out of all this. I would appreciate hearing from you.

Thank you,

DOTTIE JEAN RINDELS.

ITEM 5. LETTER FROM MRS. LEWIS J. SEAMAN, ALBUQUERQUE, N. MEX., TO SENATE SPECIAL COMMITTEE ON AGING, DATED SEPTEMBER 25, 1979

DEAR COMMITTEE: I've called my Senator's office in order to get your address. I feel my family fall into the many hardships caused by the death of their father and my husband. He worked for Anaconda Mining Co. with the raw yellow cake. It's hard to recall dates so much time has lapsed. Seems he went there in the fall of 1956, he passed away in the fall of 1960.

In our many doctor tests and efforts for help to save his life, a Dr. Fred Horneman at that time in Albuquerque found high radiation levels in his blood.

He was payed workmens benefits until they expired.

I was left with three children all under age. The older immediately entered the Cuban war by my signing for him.

We truly had a very hard struggle since long before we had lost all grandparents.

We were just droped with no means of help. It took me all most 2 years to pay for his burial expense. Some doctors said he died of amylo lateral sclerosis. He died at age 50.

I would appreciate hearing from you.

Sincerely,

MRS. LEWIS J. SEAMAN.

ITEM 6. LETTER FROM MRS. PAUL THOMAS, PICHER, OKLA., CONCERNING THE DEATH OF ERNESTINE V. MILLER, TO SENATOR PETE V. DOMENICI, DATED SEPTEMBER 28, 1979

DEAR SENATOR DOMENICI: First I want to thank you for your letter and your earnest concern it is greatly appreciated.

I am sending a photocopy of my brother-in-law's death certificate along with other papers and whatever we can furnish you about his condition we will be glad to do so.

Ernestine was 62 years of age at time of his death.

The Veterans Administration Hospital, Albuquerque, N. Mex., doctors were James M. Larkin, M.D., Dr. Lowe, M.D., Dr. Anderson, Dr. Davidson, Dr. M. Smith, who is the staff doctor there; there were other doctors later, and Dr. William C. Abbott, M.D., all at 2100 Ridgecrest Drive S.E., Albuquerque, N.M. 87108.

The private doctors before going to the VA Hospital were Norton Ritter, M.D. and Dr. M. A. Connell, M.D., Grants Clinic, Grants, N. Mex., Dr. McQuigg, M.D., Albuquerque, N. Mex., Dr. J. William Warren, M.D., Encind Medical Plaza, N.E., Albuquerque, N. Mex., Emmitt Altman, M.D., 200 Oak N.E., Albuquerque, N. Mex.

When he was still working for Kerr-McGee Mining Co in Grants he went in for his yearly checkup, thinking he was a well man and Dr. Norton Ritter examined him and said that he had to go to Dr. McQuigg in Albuquerque immediately for surgery, that there was something wrong with his lungs, he went the next day and they operated on him the next day at Battan Hospital and removed lower lobe from his lung. When he was dismissed from the hospital, Dr. Ritter and Dr. Connell both told him that he needed to find other work that he shouldn't be in the mines any longer.

The only benefits that he received was he applied for his disability social security and was awarded in 1969 and then his disability veterans pension, he received the VA pension until his death but the social security was cut off and he had to reapply

and was granted again, which I am sending you photocopies of the awards on these. He never received any workmen's compensation whatsoever and was not paid any of the pension retirement funds that he had paid in each week to Kerr-McGee. The only thing that Kerr-McGee paid was on the hospital bill for the lung surgery the first time. He said he would have sued them but that he was unable to do so because he was too ill. If my sister, Pearl Miller, had not been a teacher in the Albuquerque school system, they would not have had money to eat on, because he paid for his medicines and doctors all the time until he went to the VA Hospital, and she cared for him with the help of her sisters going there and staying with them.

Other miners that I know about are: Armol Graham, Route 1, Quapaw, Okla. 74363 who expired 5-18-79 with cancer, Russel Graham, his wife lives in Grants, New Mex. Armol Graham's widow is Hazel Graham, Route 1, Quapaw, Okla. 74363. Roy Bowerman expired 6-17-67, with advanced pulmonary emphysema, his widow lives 461 S. Connell, Picher, Okla. 74360, and her name is Mary Bowerman and he was 55 years of age when he died. Troy Graves expired 8-26-69 at age 42, his widow lives here in Picher, Okla. and her name is Iva Lou Graves Davis, 214 South Frisco St., Picher, Okla., she remarried after Mr. Graves death and Mr. Davis is also deceased. Leo Hewett, Grants, N. Mex. I do not have his address but could get it. Delbert Roberts, Route, Grove, Okla., retired on disability—cancer, he was in the VA Hospital at Albuquerque the same time as Mr. Miller and I saw him there often. Booth Tuttle, Grants, N. Mex., expired 1978 or 1979 his widow is Marie Tuttle, I could get her address, Lewis Cleo Wilson retired due to disability of lungs 1111 East D Street, Commerce, Okla. 74339, Arthur Walkenshaw retired with disability lungs and cancer 625 South Cherokee St., Picher, Okla. 74360.

Joe Longaker, who was State mine inspector of New Mexico had cancer and lived in Albuquerque and would come to see Mr. Miller at home and in the hospital I do not know if he is still living or not and a friend of his who lived at Grants, Pete Naramore, who was a hoisterman and perhaps owns a feed store in Grants at this time. I am sure there are hundreds of others that I know that went from Picher lead and zinc mines to Grants in 1957 and since that time that I cannot think of or have not heard about. On some of the above men the first cause of death would be myocardial infaction but had been ill with other problems of lungs or couldn't diagnosis.

You may use any information about my sister's husband and she or I will be glad to furnish you with what other information about him that will be of help. She is still teaching in Albuquerque and is at Indian School during the day and her home phone number is 1-505-296-3423 and she is home after 3 p.m. in the afternoon.

Again thanks to you and your staff for this time consuming task and we are hoping for the best to aid the people that it has touched their lives.

Yours truly,

MRS. PAUL THOMAS.

ITEM 7. LETTER FROM ARTHUR PAUL WALKENSHAW, PICHER, OKLA., TO EILEEN WINKELMAN, STAFF MEMBER, SPECIAL COMMITTEE ON AGING

DEAR MS. WINKELMAN: I am writing in regard to the uranium bill and hopefully the help to the miners. I worked in Picher, Okla. in the lead and zinc mines for Eagle-Picher Mining Co., Evans-Wallower Mining Co., American Lead & Zinc Mining Co., for a total of 20 years both underground and above and then moving to Grants, N. Mex., in 1957 and working there until 1963 working in the uranium mines part underground and above for Kerr-McGee Mining Co. and worked there until 1963 going to work for Fenix-Scisson Construction Co., Inc. in 1963 as a hoisterman working underground and above. I had to quit working November 1976 because of cancer. I have been in and out of the hospital in Houston, Tex. and Joplin, Mo., since that time for surgery and treatment. Prior to the time I quit working I was in Battan Hospital in Albuquerque, N. Mex., and Grants Hospital, Grants, N. Mex.

My social security number is: Arthur Paul Walkenshaw, 444-09-6478, age 62.

My doctor is Wm. Bird, M.D., 1031 McIntosh, Joplin, Mo. 64801.

I can give you names of other fellow workers and friends that have the same thing that I do and some that have already expired that worked in the mines.

If you need to call me, my number is: 918-673-2894.

Thank you.

Yours truly,

ARTHUR PAUL WALKENSHAW.

ITEM 8. LETTER FROM CORDILIA T. RODRIGUEZ, MILAN, N. MEX.,
TO SENATOR PETE V. DOMENICI, DATED OCTOBER 3, 1979

SIR: I am answering your letter and some of the things you want to know about my husband. Well he was 49 years old his smoking habits he have already quit smoking around 5 years ago when he got sick. The doctors opinions were this left lung was abscessed, the liver was atrophied, and he had pneumoconiosis. Any way, I can go and get his autopsy copy and send it to you so you can see. He didn't get any thing from this mine or from the California mines. He had already quit from his mines at the time of his death. He had quit in May and he passes away October 4, 1973. In the autopsy it says everything.

Well, this is all I can tell you for this time.

Yours sincerely,

CORDILIA T. RODRIGUEZ.

ITEM 9. LETTER FROM E. M. MOSTYN, M.D., LOVELACE-BATAAN
MEDICAL CENTER, ALBUQUERQUE, N. MEX., REGARDING
WARREN BAYLEY, SR., TO WILLIAM C. MADISON, ATTORNEY AT
LAW, ALBUQUERQUE, N. MEX., DATED SEPTEMBER 23, 1976

DEAR MR. MADISON: I first saw Mr. Bayley in 1971. At that time he was 58 years old and had mined all of his life, mostly other metals but very little coal mining. When I originally saw him he was working as a maintenance man at an altitude of 7,000 feet. He had noticed gradually increasing dyspnea since 1965 and even in 1971 he was having difficulty in taking off and putting on his shoes. He had a previous history of surgery for cervical disc. Physical examination at that time showed that he was alert, plethoric, cyanotic, and cheerful. He had 2+ clubbing of the fingers and toes. There were many fine sticky rales throughout both lung fields. His chest X-ray then showed a combination of far advanced emphysema and silicosis with enlargement of both pulmonary arteries, left more than right. EKG showed a vertical axis, evidence of strain on the heart from his lung disease. Pulmonary function studies showed severe obstructive airway disease and marked loss of ability to take up oxygen from the air. His arterial oxygenation was markedly decreased and he had some difficulty in blowing off carbon dioxide. He had marked alveolar hypoventilation, that is he could not breathe efficiently either to get enough oxygen in or to blow off carbon dioxide. He had evidence of secondary polycythemia. At that time it was recommended that he should apply for disability and for help under Black Lung legislation. The diagnosis at that time was chronic obstructive pulmonary disease and far advanced emphysema, silicosis, cor pulmonale, and secondary polycythemia.

Most of his mining has been copper, zinc, gold, and silver and for 11 years uranium. I started Mr. Bayley on home oxygen and bronchodilators, saw him on a regular basis up until November 1972, he continued to work. His lung disease changed very little. He was then seen by Dr. Wang in Grants who referred him to Dr. MacQuigg in February 1975 because of a possible mass in the left lung. Bronchoscopy was done and it was felt that this was an enlarged left pulmonary artery and this has not changed. I saw Mr. Bayley again on 9/21/76 because of increasing shortness of breath. He was still working but finding it more and more difficult.

He had been using his night time oxygen on a regular basis. He had stopped all other medications. He told me that his shortness of breath was now quite disabling. He was also getting swelling of his ankles at night and he also told me he had developed a hernia. He was plethoric and cyanotic. There was minimal peripheral edema. Breath sounds were very distant with scattered wheezes and rales. I arranged for him to have a full pulmonary workup which is in the process of being done at the present time and I will be glad to send you the results of these studies as soon as they are available. His hemoglobin this time was 18.3 grams, hematocrit 53, SMA 4 and SMA 12 were normal. Urine contained some white cells. His chest X-ray showed hyperinflation of the lung fields with large pulmonary arteries. Pulmonary function studies will be repeated on Monday of next week and I will be seeing him thereafter.

I have been amazed that Mr. Bayley has continued to work since I saw him in 1971. From just my simple observation of him last week, this man is totally disabled from any gainful occupation. He is short of breath on minimal exertion, getting dressed or taking a bath. I think he should cease working completely and that any work either above ground or underground will be detrimental to his health. I am sure that part of his present condition is related to his long exposure

to mining, however, emphysema per se may be aggravated by coal mining, but smoking is an integral part of the etiology of emphysema and we rarely see emphysema in non-smoking miners. Thus, we have to say that his job plus his smoking history together have aggravated his condition to such an extent that he is now totally disabled.

Yours sincerely,

E. M. Mostyn, M.D.

ITEM 10. MEMORANDUM FROM B. D. WANG, M.D., GRANTS CLINIC,
GRANTS, N. MEX., REGARDING WARREN BAILEY, SR.

JUNE 4, 1975

TO WHOM IT MAY CONCERN:

RE: WARREN BAILEY SR.

Mr. Bailey has been coming to the Grants Clinic since 1963. He has a hearing defect, and emphysema, and more recently a spot on his left lung is being observed with a question of whether it is Cancerous.

In 1971, Dr. Mostyn at the Lovelace Clinic suspected the possibility of silicosis with some evidence of asthma and also some prostate trouble. More recently in February of 1975, Dr. R. MacQuigg has been concerned with cancer of the lung. He will be returning to the LoveLace Clinic for followup.

This man is still trying to work but I have no doubt that in due course he will be totally disabled.

Sincerely yours,

B. D. WANG, M.D.

ITEM 11. LETTER FROM DELLA A. LEE, SHIPROCK, N. MEX., TO
SENATOR PETE V. DOMENICI, DATED SEPTEMBER 12, 1979

DEAR SENATOR: I am writing in regards to the uranium miners compensation that is being claimed against the Department of Energy.

On August 30, 1979, at Grants, N. Mex., I heard uranium miners and survivors of uranium miners discuss how uranium mining affected them. As a survivor, I would like to put my comments in writing for your files.

The companies and places where my late husband, Herbert K. Lee, worked are as follows:

Dates:

1942 to 1948	Rico Argentina Mining Co., Rico, Colo.
1948 to 1951	Sitton & Dulaney Mining, Dove Creek, Colo.
1951 to 1952	J. R. Simplet Co., Bull Canyon, Colo.
1952 to 1953	Harold Johnson and John Hargrove, Dove Creek, Colo.
1953 to 1954	Boyles Bros. Drilling of Salt Lake, Montecello, Utah.
1955 to 1956	He Sho Shee Co., Monument Valley, Utah
1956 to 1957	Johns T. Charley (VCA) Naturita, Colo.
1957 to 1957(8 mo.)	Donald L. (VCA) Naturita, Colo.
1958 to 1960	Burwell Mining Co., Egnar, Colo.
1961 to 1962	Utah Navajo Mine, Fruitland, N. Mex.

In most of the places mentioned above, Herbert was contracted to work in the worst working conditions compared to the present-day mines. As I have sometimes gone inside the mines myself, I remember seeing the places as very dangerous and very unsafe. There were hardly any ventilations. I remember the places as dusty, and water dripping from the ceiling. Thinking back now, I can just smell the bad odor. I also remember having trouble breathing. Herbert would go to work in his work clothes, which consisted of old denim jeans and T shirts along with just a hard hat. There were no oxygen masks or protective clothing. He had no medical insurance or benefits of any kind.

During the 1950's through 1960, he worked as heavy equipment operator. He was contracted to drill and blast uranium. In one day he would blast two or three times. Then within 15-20 minutes after blasting along with other miners, he would go inside the mines to haul out the uranium. At that time he was never told that the working conditions were unsafe and dangerous.

There were no housing facilities available. Most of the time we had to do without. Once in awhile, we rented small tents (8' by 12') for \$30 per month.

Then between 1962 and 1963, he went to see a doctor in Dove Creek, Colo., where the doctor told him that his lungs were looking bad on the X-rays he took. The doctor told him that his working in the mines was beginning to effect his lungs. That's when he last worked in the mines. Afterwards, he worked elsewhere. However, his lungs were getting worse until on December 16, 1966, he had an operation under his right arm. There the surgeon gave us the worst news—Herbert had only 6 months to live. His lungs were badly infected with cancer. He did not live 6 months, though. He died at 10:15 p.m. January 25, 1967. His cause of death is recorded as lung cancer.

(There is one thing that I would like to clarify, though. On one of the medical reports by Dr. Husen, it says that Herbert was a one pack a day smoker. To my knowledge, that is not true. He did smoke once in awhile, but one pack a day is not what he smoked.)

My husband's death left us *devastated* and desolated. Our hardship worsens. To this day, my family is still struggling, although we are receiving \$250 per month from social security. Even that is hardly enough for food or to pay the utility bill.

As far as I know, Herbert had done a tremendous job for the U.S. Atomic Energy Commission—a dangerous job that took his life, and was never paid enough for. For as much as he did for the United States, I believe some type of compensation is due to Herbert K. Lee's survivors, my family.

Sincerely,

DELLA A. LEE.

ITEM 12. LETTER AND ENCLOSURE FROM GEORGE DANNENBAUM, GRANTS, N. MEX., PAST STATE COMMANDER, VETERANS OF FOREIGN WARS, TO SENATOR PETE V. DOMENICI, DATED SEPTEMBER 7, 1979

DEAR SENATOR DOMENICI: The enclosed resolution was passed unanimously at a post meeting held in Grants on September 5, 1979.

It is self explanatory. Documentation is available.

On behalf of the post and others in Grants, your efforts on behalf of the miners, problem in this area is deeply appreciated.

The resolution covers another facet of the total problem. The fact that afflicted miners, many times, do not have any place to go for help.

In the case of Harry Barnes, the VFW is the only organization that might help him, although mining is not the function of the veterans, especially.

At the time he needed legal aid to fight the decision of the social security, none evidently was available.

That his remaining source of income, compensation from the insurance company, was cut off because of the decision of social security is hairy.

Please continue to help the afflicted miners in general and Comrade Harry Barnes in particular.

Yours truly,

GEORGE DANNENBAUM.

Enclosure.

RESOLUTION

JESSE L. FINLEY POST 3221, VETERANS OF FOREIGN WARS

Whereas, Harry Barnes, a former commander of Post 3221, Grants, N. Mex., Veterans of Foreign Wars of the United States, and a former district commander in the State of New Mexico, is at this time permanently disabled, and, as a result of an erroneous decision made at a hearing held by Social Security on the 29th day of June, 1977, at which time Comrade Barnes was declared not permanently disabled, and, whereby, as a result of that decision, Comrade Barnes was deprived of his sources of income except for a small company pension,

And whereas, the Veterans Administration Center located in Tucson, Ariz., knows the condition of Comrade Barnes to be one of an advanced state of cancer, and, this fact is known and can be substantiated.

And whereas, the 1977 decision was obviously in error at that time,

And whereas, Comrade Barnes devoted his life to mining and has worked for decades in uranium mines, endangering his life and contributing to the mining industry and to the welfare of the citizens of the United States of America,

And whereas, Comrade Barnes served his country in the front lines of Europe during World War II and received honors for his bravery as an outstanding soldier,

And whereas, many members of VFW Post 3221 have engaged in the mining profession and have been victims of cancer,

Therefore be it resolved, That the U.S. Government immediately see that Comrade Barnes' status be immediately declared as disabled in fact by Social Security so that Comrade Barnes may receive the compensation he so justly deserves, and that Social Security be contacted at once and so advised.

Be it further resolved, That the State Commanders of New Mexico and Arizona, Veterans of Foreign Wars, be asked to contact the President of the United States, the congressional delegations of Arizona and New Mexico for support, and that the national commander in chief of the Veterans of Foreign Wars of the United States use his considerable influence to see that justice prevails in the case of Comrade Harry Barnes.

And be it further resolved. That the U.S. Government, the executive and legislative branches initiate, at once, a complete investigation of the treatment of disabled miners, veteran and nonveteran.

Passed unanimously in regular meeting held this 5th day of September, 1979.

JERRY CASTENEDA,
Post Commander.
 PLACIDO GRIEGO,
Adjutant.

Appendix 3

STATEMENTS SUBMITTED BY THE HEARING AUDIENCE

During the course of the hearing, a form was made available by the committee to those attending who wished to make suggestions and recommendations but were unable to testify because of time limitations. The form read as follows:

Dear Senator Domenici: If there had been time for everyone to speak at the hearing on "Occupational Health Hazards of Older Workers In New Mexico," on August 30, 1979, I would have said:

The following replies were received:

LINDA DIETZ, ALBUQUERQUE, N. MEX.

In an attempt to aid you in the successful passage of legislation which would adequately compensate our first uranium miners, I would like to bring to your attention a unique provision in the Federal statute of limitations: 28 USC 2415(b) allows the Federal Government to sue on behalf of the Indians *any* party guilty of a tort, if the tort, negligence in this instance, occurred prior to July 18, 1966 (the date of enactment of the statute).

This provision safely gets a Government attorney by the statute of limitation problem private attorneys must face, provided the suit is filed before April 1, 1980, but an obvious kicker is that the advantage only benefits Indian miners.

Another kicker would be that the Government, as it cannot sue itself, would hold the companies responsible for negligent operations of the mines regardless of who(m) inticed the companies to produce.

Clearly legislation with the suggestions included as have already been mentioned, in particular those made by the gentleman attorney from Utah regarding "presumption," would alleviate the potential risk private compensation attorneys face in proving proximate cause as well as prevent a legal morass which would occur between the Government and the companies should the Justice Department bring any suit pursuant to the above mentioned statute.

JUAN R. VELASQUEZ, ALBUQUERQUE, N. MEX.

I applaud the Senator's efforts in bringing to light to the country a subject of concern which has had only regional focus. I would only caution that whatever form of compensation is proposed it not be so broad that it becomes a giveaway program nor so restrictive that only a select few can so cause to receive benefits. I agree with the Senator that in this case it is wise to err in favor of the miner. However, it would be very unfair and detrimental to the industry today to leave the wrongful impression on the general public that the mines of today subject the miner to conditions similar to those of yesterday.