

**ROBERT ELMER MILLER,  
Manager of AEC Nevada Operations Office**

**Direct Examination by MR. YANNACONE:**

Q. Dr. Miller, would you give us your title and —

A. It's not doctor. We'll get rid of that to start with. It's Robert Elmer Miller. I'm manager of the Nevada operations office of the Atomic Energy Commission.

Q. How long have you been so employed?

A. In this position since 1 January 1969.

Q. And prior to that time, where were you employed?

A. The Atomic Energy Commission.

Q. Where?

A. Nevada Operations Office since 1961, and the office of Test Operations since 1955.

Q. You have been with the atomic testing program almost since the beginning, haven't you?

A. Since 1955.

Q. Would you describe briefly for us for job duties at the present time?

A. I am the administrator of functions, including administration, contract administration, engineering, construction, logistics, operations, safety, classification and security in support of nuclear weapons test operations in the Plowshare Program.

Q. In the course of your regular work with the Atomic Energy Commission, have you had occasion to review the material with respect to Project Rulison?

A. I have.

Q. Is any portion of that material classified?

A. Yes.

Q. Can you delineate for us the areas that are classified so we don't waste any time?

A. There are some portions of the literature that have to do with the device, its manufacture, which are classified.

Q. Anything else classified?

A. The melt at the bottom of the cavity is classified until such time as is possible like this might be declassified. Not at the present time part of that melt is classified.

Q. The mouth, if I remember correctly, is an extremely hot body of molten rock. How do you go about declassify that?

A. That determination is made by the Commission.

Q. And does that mean that the information relative to the extension of the well into that melt is classified also?

A. Negative.

Q. In other words, then the only composition of the mouth is declassified information, right?

A. The best way I can state that, sir, is that some portion of the mountain is currently classified.

Q. It may be confusing to those of us who are not familiar with the Atomic Energy Commission on the classification program. How do you classify rock?

A. A rock as such? It's unclassified.

Q. It's the amount that is classified, not data about it?

MR. EARDLEY: the composition about that, is that what you're getting at?

A. The isotopes and debris that is contained in the melt at the bottom of the cavity as a result of the nuclear explosion is in part classified since it indicates the design of the weapon.

Q. All right. The information about the melt is classified.

A. That is correct.

Q. The molten rock is public domain?

A. I think it's clearly stated that the analysis is classified.

Q. Fine. Everything else is public information, right?

A. Yes, sir, with those two exceptions.

Q. Is all the data with respect to Project Rulison on file in your office?

A. Sir, so that you and I understand each other, terms like "all," "everything," "completely," I will have to say to you that I don't believe, you know, that I can answer that question. If you would say, do I believe that most of it particularly that which has to do with the AEC's portion, it is on file in my office. I don't know who else has written material about Project Rulison.

Q. Well, would you outline first briefly what you do know about Project Rulison, if anything?

MR. EARDLEY: how much time do you have?

MR. YANNACONE: as long as he can keep talking, I can keep listening.

MR. EARDLEY: I object to the question. After all, if you have some specific information you want to ask, ask it. But just to start talking about Rulison —

MR. YANNACONE: I want to know, Mr. Miller, what if anything is on file in your office as documents relative to project Rulison. First of all, do you have an index of them?

A. The following files are all available, and I believe describe the nature and the objectives of Project Rulison: the feasibility study the project definition plan, the contract, the cost estimates, the operational reports having to do with the detonation at the present time.

Q. Are those the only reports and documents on file with respect the project listed in your office?

A. I'm confident that they are not all of them, ... That those are the important ones that I can immediately recall, sir.

Q. Do you have an index of all the documents on file in your office with respect to project Rulison?

A. Now, an all-inclusive one, no. I'm getting only to your definition, sir, because this could be any kind of piece of paper, including a news announcement. And I'm describing the operational documents.

Q. Mr. Miller, with respect to the operations of the Nevada test Center, you are what again?

A. I'm manager the office, sir.

Q. And whom do you report to?

A. The general manager.

Q. Who is the general manager?

A. Robert Hollingsworth.

Q. Where is he located?

A. Washington, DC

Q. And with respect to the resident manager, general functions of the Nevada operations, you are the sole and complete loss of the operation, as it were?

A. Within the limits that are established by the general manager's directives.

Q. What are those limits of your job as they affect Project Rulison?

A. There described in three documents. \*\*\* One is an operational mandate signed by John Kelly having to do with the operational authority to execute Project Rulison. \*\*\* The general manager's delegation of authority for the administration of the Project Rulison contract, stated April 1, square bracket 1969]. ... The description of my duties is contained in General Manager's Memorandum Manual, Chapter 0183. I don't know the date.

Q. With respect to a document entitled NVO-48, Reviews to Ensure Safety of Nuclear Operations, which has a designation "Exhibit 1," prepared by the Nevada Operations Office of the U. S. Atomic Energy Commission, dated July 31, 1969, there is located therein "designated enclosure 2," a chart entitled "Effects Management and Review Organizations," have you seen that?

A. I'm very familiar with that.

- Q. In this particular chart, you are the party in the box labeled "manager, NVO," is that correct?
- A. That is correct.
- Q. Who's the man that shows the title of Test Manager?
- A. Mr. Robert Thalgott.
- Q. And who fills the position of Director, Effects Evaluation Division?
- A. Dr. Elwood Douthett.
- Q. And where is he located?
- A. Las Vegas, Nevada.
- Q. And who is the Effects Evaluation Scientist?
- A. Dr. Rodney Aamodt.
- Q. And who is his scientific assistant or the Scientific Assistant?
- A. If I recall correctly, that's the man in our office.
- Q. And have you been working directly with him? In the early days you worked with Dick Johnson, more recently with —
- A. That varies, depending on the subject as a practical matter.
- Q. Is doctor Aamodt independent of the Atomic Energy Commission or is he an AEC employee or member of the Nevada facility?
- A. He's employed by the Los Alamos Scientific Laboratory, which is not contractually responsible to me.
- Q. Who are they contractually responsible to?
- A. The Albuquerque Operations Office.
- Q. In other words, then he is on loan up here?
- A. That is correct.
- Q. Now, under the test manager, Mr. Thalgott, there is a test group director. Who is that?
- A. In this case that was Mr. Campbell.
- Q. And who is the scientific advisor?
- A. Dr. William Ogle.

Q. And who makes up this advisory panel?

A. It depends on which panel we're talking about. The pre-shot advisory panel is established by the test manager.

Q. And what other panels do you have?

A. There was a panel of consultants which examine the plan for Project Rulison detonation, and I think, if you look at your chart, you'll find that in this General block here is the panel consultants. ... Because you are now getting up to those people who report directly to me. If you want to, I can quickly go through them help you.

Q. Who are the people now, so we can keep the record straight, that are reporting directly to you? \*\*\*

A. The Atomic Weapons Safety Advisory Board is headed by Mr. William Larkin of the Nevada Operations Office. The Plowshare Advisory Group includes Dr. William Ogle, Dr. Harry Reynolds, Dr. Byron Murphey. [sic]. Ended varies, but generally speaking from the Department of Interior this will be Mr. Russell. They have several members who occupy this position I have three scientific advisors permanently assigned to me from the laboratories. They internal also part of this advisory group, the same ones, Dr. Overall, Reynolds and Murphey.

The power consultants are an independent panel consisting of Dr. Stanley Wilson, Tommy Thompson, Dr. George Maxie, Dr. Von Losberg's. That constitutes the panel of consultants who review routinely operations, provided me independent reviews, and in addition, there has been an ad hoc panel formulated to examine our approach to Project Rules and reentry, which consists of the following: Dr. Sagin, Palo Alto, Dr. Schultz, University Washington; Dr. Bustad, University of California, Davis; Mr. Warren Beebe, independent consultant, petroleum and chemical engineering; Dr. T. B. O'Brien, Past Chairman of the American Petroleum Institute.

The NTS planning board on the right —

Q. What does NTS mean?

A. Nevada Test Site. The Planning Board, because of scheduled interactions, this is chaired by Dr. Roger Baitsel and is comprised of representatives of the operating laboratories.

Q. In the course of the regular operations of the Nevada Operations Office, have you had occasion to secure or receive written reports from these various groups and panels on the progress of Project Rulison?

A. I have served.

Q. And have all these been duly indexed and are they on file in your office?

A. Let me respond in this fashion. The effects evaluation report contains the report of the panel of consultants for the detonation itself. That document has already been furnished to the court.

Q. Any other documents?

A. The only document that is not yet been furnished to this body is the consultant statement of the group, Dr. Schultz, Bustad and Sagin, who are presently reviewing the draft plan for Project Willison reentry, and there will be further meetings in that connection. So that report is not yet final.

Q. Is your organization responsible for the safety of Project Relisten?

A. That is correct, sir.

Q. And under what, if any, federal, state, local or other guidelines do you make determinations of safety?

A. This dependence upon the effects area we are discussing. But with respect to radiation my guides are contained in the general manager's directive, Chapter 0524. \*\*\*

Q. With respect to the subject matter of this particular litigation, have you, in the course of your regular professional activities, had occasion to review the Federal Radiation Council memorandum for the President, dated May 13, 1960, with respect to permissible levels of radiation?

A. Let me answer the question this way. I have read that document. That document is not a directive to me. My directive is contained in the Gen. Manager's Document 0524.  
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Q. Is that your sole and complete criteria for radiation protection?

A. With respect to private Rulison, my direction is to conduct the operation within the limits of Section II A of 0524.

Q. With respect to the operations you conduct, how do you determine in the course of your regular activities whether or not you have indeed complied with Section 2 II A entitled "Radiation Protection Standards for External and Internal Exposure, Individuals and Population Groups and Uncontrolled Areas of AEC Appendix 0 524, Standards for Radiation Protection"?

A. This is the result of an instrumentation and documentation program which involves the Eberlein Instrument Company, United States Public Health Service, the United States Geological Survey, the USESSA — and I'll put that in parens as the Weather Bureau, since I don't know exactly whether that's the Environmental Service Agency or something else. These organizations instrument, make measurements, analyze the data and provide reports as to whether or not we indeed are complying with the direction provided us by our headquarters.

Q. Now in Section II, entitled "Individuals and Population Groups and Uncontrolled Areas of AEC Appendix 0524," Section A deals with radiation protection standards for internal and external exposure. Section B deals with the procedural requirements for making such determinations. Now, do you feel you are bound by Section B of that Section II?\*\*\*

A. We may use these as guides, and, indeed, as a practical matter, we follow them. But in the case of Project Rulison, that was not part of the operational rules.

Q. What document tells us what was the operational guideline for Project Rulison?

A. A cited message dated I believe, April 11, from Mr. John Kelly, Director of the Division of Peaceful Use of Military Explosives Caps off.

Q. And That Made Some Deviations from This Appendix 0 524 for Purposes of Project Rules and, didn't it?

A. It did not make deviations, per se. It merely stated that the guidance was provided in Sections I A and II A.

Q. And eliminated B and C of each of those?

A. Not necessarily eliminated. The TWX did not cite that as authority.

Q. What's a TWX?

A. I'm sorry. The message from Mr. Kelly did not cite that authority.

Q. In other words, if it wasn't cited as an authority, you don't have to follow it?

A. It's not necessary that I follow it in this case.

Q. In this case did you in fact follow it?

A. As a practical matter, we are following it.

Q. Are you making environmental and food chain monitoring?

A. In a general program sense, should we follow our present plan, we are considering making such measurements.

Q. What portion of the food chain you intend to monitor?

A. It's not been firmly established at this time since the plan has not been completely approved.

Q. Do you intend to flare any radioactive materials until such determination is made?

A. We do not intend to flare, nor do we intend to reenter until such time as we have completed our planning function.

Q. What, if anything can be considered equivalent safety monitoring to specifications Be and C under provisions I and II of AEC Appendix 0524?

A. That requires a technical answer, and I will defer to Dr. Carter.

Q. Who is Dr. Carter?

A. Director of the Southwest Research Laboratory, the United States Public Health Service.

Q. Mr. Thalgott is the —

A. — Test Manager.

Q. Has Mr. Thalgott reported to you directly in written form on any of the aspects of radiation safety with respect to Project Rulison?

A. Yes, he certainly has.

Q. Are all these writings all indexed and present in your office?

A. Indexed and present in my office, affirmative.

Q. It is there anything that you are aware of with respect to radiation safety in Project Rules and that you have first-hand knowledge that Mr. Thiel got for Dr. Carter don't have on first-hand knowledge?

A. No, sir.

Q. In other words, then as project manager or operations manager, you received it most of your information in reports from people who report to you?

A. That is correct, sir. In the only addition to that is in addition to the ad hoc panel, the individuals I named before, for the reentry. I have also consulted with the Battelle Memorial Institute, Again Separately with the United States Geological Survey, and Again Separately with the ESS a weather Bureau, and again separately with the Scientific Advisors as to their opinions and recommendations as to the safeness of proceeding with reentry.

Q. Who was the man was responsible for determining whether to fire or not to fire Project Rulison when it did go off?

A. I am not. The responsibilities of the test manager are those that, once having been assigned this task and permission to proceed when it's safe, all matters of his responsibility from that point on in the field.

Q. Did you determine the criteria of when it would be safe? What environmental criteria would determine safety?

A. With respect to the detonation, I personally did not determine it. This was a staff action, essentially using the same group that you have just discussed.

Q. Did you approve it?

A. I recommended to headquarters, affirmative.

Q. And did you recommend at that time certain environmental guidelines that will be followed by the manager in the field to determine when to push the button to make the detonation?

A. Yes, sir, upon the advice of the test manager in his advisory panel, they had determined what they considered to be a safe criterion.

Q. Whether these criteria for safety reduce the writing?

A. They were, and that were publicly announced at the time of the Project Rulison execution.

Q. And is the written report a part of this record?

A. I don't know what's all in the record.

Q. What is its title?

A. These would be the weather summaries. I suspect that they were not. And that's just because I don't know. But I suspect that they are not. However, they are matter of being in the public domain, whether or not they are a matter of this record.

Q. What if any whether criteria were involved? \*\*\* Which ones, what elements, wind direction, speed, winds aloft?

A. My answer to that is yes.

Q. And were certain specific limits placed on freedom to fire the nuclear device based on wind patterns?

A. Restrictions in the sense that we had determined what we considered the safe sector to fire into. This was a determination made both by the test manager upon the

advice of scientific advisors. I was aware of this and concurred and it.

Q. And was generally safe when direction and generally unsafe when direction decided upon in advance?

A. Affirmative. I'm sorry. I want to correct that statement. It was not unsafe. There were those areas which we considered in the unlikely event of a venting, whether debris or the radioactive material would find a better sector. There were less people involved. Under the other circumstances, however, there was no question as to whether or not the detonation was safe.

Q. Well, if the wind was blowing from one of these less favored directions, could the shot still of gone off?

A. I feel that it could have. But on the basis of our operating procedures — and we have been charged with being ultraconservative — and we decided not to do that. \*\*\* There was no particular mandate that we follow that, once having made the determination that the detonation was safe.

Q. Now, with respect to determining safety, you said your determination was solely governed by provisions II A of Appendix 0524, right?

A. That was the specific operational guidance.

Q. And this is all that really bound you, right?

A. My answer must be again specifically in terms of Project Rulison. That was the operational guidance provided.

Q. Who furnished the guidance?

A. Mr. John Kelly, Director, Division of Peaceful Nuclear Explosives, AEC headquarters.

Q. And that's in Washington?

A. That's correct.

Q. Was Mr. Kelly free to set these safety criteria or was he taking an order and mandate from someone else?

A. I am unaware of Mr. Kelly's method of operations to the extent that I have been able to testify.

Q. You report any further up the line then to Mr. Kelly?

A. I report to Ms. Kelly. I report from a, you might say, command line to the general manager.

Q. Who is the general manager?

A. I have already stated before, Mr. Hollingsworth.

Q. Did you at any time receive any directives with respect to safety from Mr. Hollingsworth?

A. Yes, sir. I cited that in the documents that have already been entered into the case, and that's the letter dated April 1, 1968.

Q. What safety criteria did Mr. Hollingsworth follow?

A. 0524 by reference, and that is the general manager's directives with respect to radiation, and the general safety conditions to protect the health of the people involved.

Q. Is Mr. Hollingsworth higher than Mr. Kelly?

A. Yes, sir. Mr. Kelly reports to Mr. Hollingsworth.

Q. Mr. Kelly was the one that specifically said that only Section II A is directly applicable of 0524?

A. Mad take exception to what you stated? Mr. Kelly stated to me by directive that Sections I A and II They were directives.

Q. Did Mr. Kelly received a notice, or did you receive a copy of a notice to Mr. Kelly with respect to safety standards for Mr. Hollingsworth?

A. I received directly from Mr. Hollingsworth a memorandum which indicated that I had authority and responsibility for conducting the operation, and that authority conveying to the other references that I cited to you, sir, and Chapter 0183 carries my general delegation of authority and requirements for proceeding.

Q. Without getting lost in a bureaucratic maze, at any time in his chain of command and into an interrelationship of directives, were you obliged to follow all of zero 524?

A. Obligated? I think that my obligation, if you wish to treat it that way, is to protect those people who reside in and around and participate in the experiment to the maximum extent. And to that extent that 0524 applies, I would use that or any other available information.

Q. When you say, "to the maximum extent," have you considered the presence of any ionizing radiation on any human being?

A. I certainly have.

Q. And can you say that there is any safe level ionizing radiation for any human being?

A. I will state that, that I believe that the —

Q. No. Mr. Witness, I asked you a specific question. \*\*\*

A. I believe, since I'm not a health physicist nor physicist and I must rely upon the advice of others, and that advice to me is that while some damage may be incurred as a result of ionizing radiation, the standards of the AEC are such that people are adequately protected.

Q. What criteria in those standards have been reported to you as effectively demonstrating that the people are adequately protected, if any?

A. None.

MR. YANNACONE: no further questions.