

IRENE H. ALLEN et al VS UNITED STATES OF AMERICA
A LEGAL CHALLENGE TO EARLY RADIATION PROTECTION PRACTICES

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INTRODUCTION

Since the conclusion of the United States (U.S.) continental nuclear weapons test series in early June, 1953, there have been many investigations of alleged illnesses, diseases and other consequences from the radioactive fallout entering the atmosphere from this series of 11 nuclear weapon detonations. These investigations have been conducted by agencies of the federal government, the U.S. Congress, state governments, universities and other institutions. The allegations claimed damage to animals, specifically horses and sheep, as well as members of the general public who lived in the vicinity of the test site.

The purpose of this paper is to discuss briefly the circumstances surrounding the one group of claimants which has reached the trial stage in the U.S. District Court in Salt Lake City, Utah as the case of Irene H. Allen et al. as the plaintiff versus the United States of America as defendant (1). Initially the legal action was brought by 1,192 people. Twenty-four individuals were selected to represent the larger group and to bring the number to a manageable level. It is estimated that the total amount of damages being sought by all 1,192 plaintiffs will exceed U.S. \$2,500,000,000.

DISCUSSION

After nearly three years of legal preparation and maneuvering, the actual trial began September 13, 1982. It continued for eight weeks, then recessed for one month followed by the presentation of final arguments by the lawyers for each side which concluded on December 19, 1982. During this period the judge heard more than 100 witnesses, either in person or by deposition, and received more than 7,000 pages of testimony and 2,000 exhibits. Though the judge has not reached a decision at this time (September 30, 1983), it is expected that his verdict and its major conclusions, recommendations, and implications will be included in the oral presentation at the 6th International Congress of IRPA.

It has been estimated that the continental nuclear weapons tests in 1953 contributed approximately 80% of the regional radioactive fallout from all such tests which began in 1951 and which continue today. Thus, in terms of radiation exposure, the other several hundred atmospheric detonations are, or should be, of little consequence in this discussion. As a point of further simplification, the plaintiffs in this case are or were residents of southwestern Utah, an area 200-250 kilometers east of the weapons test site. The major population center is the city of St. George

with approximately 5,000 inhabitants and the home of a majority of the plaintiffs. The records indicate the total lifetime dose in St. George from all fallout is 3.7R (2) which is in terms of "effective biological dose" as given by Dunning (3). Recent measurements of residual Cs-137 and Pu-239,-240 have been used to reconstruct the external gamma exposure which corroborates this original dose estimate (4).

The radiation protection standards established by the U.S. Atomic Energy Commission for the 1953 series were the same as had been adopted unanimously by a special committee convened in 1951. The committee's views, reflected in Dunning (3), were that:

1. The external dose to non-participating inhabitants of radiation from gamma rays shall not exceed the accepted international permissible dose level of 300mR/week, which may be integrated over a maximum of 10 weeks.*
2. At a point of human habitation, the activity of radioactive particles in the atmosphere, averaged over a period of 24 hours, shall be limited to 100 microcuries per cubic meter of air (corresponding approximately to a ground level gamma intensity of 30mR per hour).
3. The 24-hour average radioactivity per cubic meter of air, due to suspended particles having diameters in the range of 0 microns to 5.0 microns, shall not exceed 1/100th of the above; nor is it desirable that any individual particle in this size range have an activity greater than 10^{-2} microcuries calculated 4 hours after the blast.

*Subsequently modified to allow integration over the duration of the test series which in 1953 was 13 weeks or 3.9R.

Field measurements and collections of specific environmental samples for subsequent laboratory analysis were used to evaluate pertinent exposures to people in the off-site area. Calibrated portable survey instruments were used to monitor gamma exposures three feet above the terrain. Corrected instrument readings and knowledge of time of fallout were used to estimate whole body exposures to penetrating radiation (gamma) at places people lived or frequented (5).

Particulates were collected from the air by passing a known volume of air through a dust filter. These filter samples were then analyzed in the laboratory by determination of gross beta activity which was expressed as microcuries per unit volume of air, corrected for decay, and averaged over the specified sampling period. In addition, cascade impactors (four-stage) with an added membrane filter as a fifth-stage were used to collect air particulates in size ranges which could be determined by laboratory counting and calculational procedures (6).

Other types of measurements were made in the field and other environmental samples were collected for laboratory analysis but the external penetrating radiation and the air sample measurements were the primary basis for assessing the radiation health and safety program and the determination of compliance with applicable

radiation protection standards. The equipment and procedures used in the off-site health and safety program were state-of-the-art (5,6).

The questions raised in the Allen case, some three decades after the experience, are exemplified by these selected examples: What was the commitment to health and safety? Was the health and safety program adequate and effective? Were the personnel properly trained and competent? What equipment was used? What procedures were followed? When, where, and how were measurements made? How were the data used? Who interpreted the results? What were the standards? How were the standards used? What was the understanding of the effects and especially the health effects of fallout? What and how were warnings given to the offsite population? Why weren't special standards used to protect children? Where was the ultimate responsibility for health and safety? (7).

These and other technical questions were responded to during the course of the trial. Many of them speak to the core of a health and safety program established for the protection of the public from fallout in the vicinity of the test site. Some are philosophic and thus open ended. Nonetheless, each is important in the context of being asked and answered and thus contributing information to the trial record which is what is being evaluated and judged in the Allen case.

The lawyers for the plaintiff presented several witnesses who claimed ailments ascribed to radiation but without any relationship to exposure or cause and effect. Among the claims were diabetes, deterioration of eyesight, miscarriage, allergy, and a list of cancers - bladder, brain, prostate, uterine, rectal, breast, abdominal, etc. Added to these were undiagnosed, non-specific complaints described as "foot problems", "nerves", "sleeplessness", "multiple-hemorrhages", or "constant pain" (7). Apparently it was the intent of plaintiff's counsel to produce an effect and if not consistent with the radiation exposure data of the defendant, then the logical conclusion must be that defendant's data are in error! One cannot minimize the impact of this technique on the thought processes of an individual, such as a judge, who is not familiar with radioactivity, radiation, fallout mechanisms, theories of biological effects, and the principles of radiation protection.

This lack of familiarity and understanding applies equally to the legal profession, at least as demonstrated by the lawyers involved on both sides of this case. Gross misrepresentation of fact was left unanswered simply because counsel did not have the knowledge necessary to carry out a successful challenge.

The health physicist needs to become a more active participant with his legal counsel to avoid these situations or to utilize their opportunities. Similarly, they should assist counsel in developing questions for the witnesses. The authors, as witnesses, found themselves unable to pursue important points to reasonable conclusions because the "right" questions were not asked. A witness does not have the luxury of using the witness box for free expression of professional opinions unless the dialog between witness and lawyer is well coordinated.

The Allen case also suffered from "loss of memory", i.e., events

which preceded the trial by 30 years were expected to be recalled as though they occurred only yesterday - and under oath. The actual sequence of events is impossible to reconstruct in intricate detail. One person's memory can easily contradict another and each individual is equally certain of his position. Obviously, the importance of thorough record keeping over a prolonged period of time cannot be emphasized too strongly. But even in this case, one witness for the plaintiff had his facts completely confused and denounced his written record of 30 years previous as being the work of others seeking to discredit him or to hide the "real story"(7).

There are always those who are willing and anxious to make any event involving radiation spectacular, mysterious, and alarming. It is quite satisfying to their egos to find fault with professional colleagues and to make government programs appear negligent. They offer the perfect program, given perfect hindsight. Several examples having these characteristics appear in the testimony of the Allen case (7).

In legal language, the Allen case is a civil case, as opposed to a criminal case. Accordingly, the burden of proof is on the plaintiff and by a preponderance of evidence. It is the authors' opinion that counsel for the plaintiff failed to meet this requirement. However, the authors are also of the opinion that the verdict will turn on "effect" not "cause".

Do the authors and the judge agree? The oral presentation will answer that question by analyzing the judge's decision as to its "cause" and potential "effect" on radiation protection practices.

REFERENCES

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7. See Reference 1, supra, Transcripts of Trial on file.