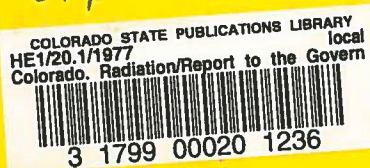


HE1/20.1/1977

c.1



RDLC

JR

REPORT TO THE GOVERNOR
OF THE
RADIATION ADVISORY COMMITTEE
FOR THE
ACTIVITIES OF THE YEAR 1977



UNION CARBIDE CORPORATION

METALS DIVISION

P. O. BOX 1029, GRAND JUNCTION, COLORADO 81501
TELEPHONE (303) 245-3700

April 28, 1978

The Honorable Richard D. Lamm
Governor of Colorado
136 State Capitol
Denver, Colorado 80203

Dear Governor Lamm:

Attached is the report of the Radiation Advisory Committee of the Colorado Department of Health for the activities of the year 1977.

Included is a summary of the topics discussed with the Department staff, topics anticipated to be discussed during 1978 and committee meeting minutes.

Very truly yours,

R. G. Beverly, Chairman
Radiation Advisory Committee

RGB/brs

INTRODUCTION

Administratively, the Radiological Health Program operates within the Department of Health under statutory authority delegated by Title 25, Article 11, Colorado Revised Statutes 1973, as amended. Rules and Regulations promulgated pursuant to this statute gives Colorado jurisdiction over virtually all radiation-related activities in the State.

The Department is advised by a Governor-appointed Radiation Advisory Committee composed of three (3) members from industry; three (3) members from the healing arts; and three (3) members from institutions of higher learning. This Committee advises the Department as to program planning and various technical decisions. Meetings are held at least four (4) times per year or more if necessary.

TABLE OF CONTENTS

Introduction

Members of the Radiation Advisory Committee

1977 Meeting Topics

Anticipated Topics for 1978

Minutes of Meetings

- a. February 10, 1977
- b. May 12, 1977
- c. August 18, 1977
- d. August 29, 1977
- e. September 12, 1977
- f. November 10, 1977

RADIATION ADVISORY COMMITTEE

<u>Name</u>	<u>Representing</u>
Robert G. Beverly	Industry
Neal Goodman, M.D.	Healing Arts
John Lemon, M.D.	Healing Arts
Selma Lock	Educational Institutions
G. H. McCormick*	Educational Institutions
Charles K. Millen	Industry
C. W. Piltingsrud*	Industry
John C. Ward, Ph.D.	Educational Institutions
Wayne W. Wenzel, M.D.	Healing Arts

*Retired

1977 Meeting Topics

February 10, 1977

- a. Rocky Flats Monitoring Committee
- b. Emergency Response Plans
- c. Colorado State University Incident
- d. Radiation Pharmacy Regulations for Colorado
- e. ERDA Waste Disposal Project

May 12, 1977

- a. "Incidents" at Rocky Flats
- b. Rocky Flats Emergency Response Plan
- c. Stolen and Lost Radioactive Materials
- d. Budget Actions
- e. Fort Saint Vrain Security Breach

August 18, 1977

- a. Homestake Uranium Mill - Pitch Project
- b. Rocky Flats Emergency Response Plan
- c. Part VI of the Draft Radiation Control Regulations

August 29, 1977

The 1976 Revised Part VI (x-ray) of the Draft Regulations
(special meeting)

September 12, 1977

Approval of the Proposed New Regulations
(special meeting)

Meeting Topics

November 10, 1977

- a. Update of Radiation Control Regulations
- b. Southeast Colorado "yellowcake" spill
- c. Uranium Processing License Application update

ANTICIPATED TOPICS

- a. Adoption of a revised version of Part III of the Proposed Regulations
- b. Response to the Release at Fort Saint Vrain
- c. Plutonium-in-Soil Sampling

Radiation Advisory Committee Report
February 10, 1977
Knudson Hall
Denver University
Denver, Colorado

Committee Members Present:

R. Beverly, Chairman
J. Ward, Vice Chairman
G. McCormick
C. Piltingsrud
O. Lee (for C. Millen)
N. Goodman, M.D.
J. Lemon, M.D.
S. Locke

Members Absent:

W. Wenzel, M.D.

Department Staff Present:

A. Hazle
W. Jacobi
J. Montgomery
C. Mattson
R. Siek
L. Grossman

Guests:

T. Hufford
R. Damrauer, Ph.d., RFMC
J. Cobb, M.D.
S. Kosmicki
R. Kelley, RFMC
C. Gottschall, Ph.d.

Approval of the minutes from the October 7 and November 4, 1976 meetings.

Chairman Beverly called the meeting to order and asked that the following corrections be made:

The fourth sentence of the last paragraph, page 3, of the November 4, 1976, minutes should read: 0.01 working level continuous exposure would give a lung dose of 8 rem/yr.

There being no further necessary changes, Mr. Beverly stated that the minutes would then stand approved as amended.

Rocky Flats Monitoring Committee

Dr. Damrauer briefly described the operations of the Rocky Flats Monitoring Committee. He stated that the Committee has tried to take a middle-of-the-road approach to the health and safety of the people of Colorado. The Committee has been separated into the following subcommittees: legal, medical, occupational, and environmental.

Ms. Lock asked, in reference to the recent accidents at Rocky Flats, who was monitoring the individuals involved.

Dr. Damrauer replied that the Health Physics staff at the plant did the monitoring.

Mr. Lee asked if the Committee issued periodic reports.

Dr. Damrauer responded that minutes from its monthly meeting are issued, and that a yearly summary is planned for March or April. One of the Committee's concern is to inform the public what is happening at the plant, and what the Committee thinks of the operation.

Mr. Lee asked about the background of the Monitoring Committee.

Dr. Damrauer said the Committee was formed as a result of a recommendation from the Lamm-Wirth Task Force; it was initiated to deal with the public rather than with the scientific community.

Mr. Beverly asked if the Committee was appointed by the Task Force.

Mr. Siek replied stating that the Task Force recommended that a monitoring committee be formed. The appointments came from Governor Lamm and Representative Wirth.

Mr. Beverly requested that a copy of the Monitoring Committee's first annual report be sent to the Radiation Advisory Committee.

Ms. Lock asked if there were a Rocky Flats disaster plan.

Dr. Damrauer told Ms. Lock that is something his committee has been very concerned about. The Committee has been working closely with Rocky Flats and the Health Department, and no one is pleased with the progress in this area. It appears that the slowdown is in the Department of Military Affairs, which has the authority for coordinating this effort. The Committee has information from the plant and from the Health Department, and has written a letter to the Governor stating that it, and others concerned, do not feel enough progress is being made. He said he hopes that since the Governor is in charge of the Department of Military Affairs, he will accelerate things. To date, there have been no drills.

Mr. Hazle added that Rocky Flats does have internal plans. A State plan was generated in 1971. However, it was very terse and put most of the responsibilities on the Health Department. It was not a good plan, but was a beginning. Since then, the Health Department has been working to establish the technical aspects. But, other parts of the plan, such as law enforcement, still need to be tied in as with the Fort St. Vrain Plan.

Dr. Damrauer asked if there was a letter of agreement between the parties involved.

Mr. Hazle replied that there was no signed agreement between the Health Department and Department of Military Affairs. Letters have been sent by us to the Attorney General's Office in order to stimulate some action. This agreement has been written for several years, but has not been signed.

The reason for a memorandum of understanding is that the emergency planning operation is delegated by law to the Department of Military Affairs, but it does not address radiation. Our Department's internal plan is essentially completed. We have also developed dose estimate procedure for a release at the plant.

Mr. Beverly inquired as to the items which the Monitoring Committee was most concerned about.

Dr. Damrauer said they included the recently released GAO report on safeguards and transportation which was a recommendation of the task force, emergency response, and the epidemiological studies.

Mr. Kelley asked about the Advisory Committee's relationship to the Colorado population's exposure to radiation.

Mr. Hazle stated that the Advisory Committee passed a resolution requesting the Department document and assess the radiation exposure to the people of Colorado from all sources of ionizing radiation, but the funding for this has been cut from this year's budget.

Mr. Beverly added that most of the situations involved have been assessed, but that the composite picture is missing.

Mr. Kelley said the Monitoring Committee could recommend that the program be funded.

Mr. Beverly asked that the Monitoring Committee's monthly report be distributed to Advisory Committee.

Emergency Response Plans

Mr. Montgomery presented the status of Emergency Response Plans, emphasizing the January exercise at Fort St. Vrain, the review of that plan, and the Rocky Flats Plan.

The exercise was successful, but there was five major problem area.

- 1) Notification procedures and time delays.
- 2) Communications.
- 3) Response field team organizations.

- 4) Command post organization.
- 5) Agricultural aspects.

A critique was held after the exercise. A representative from each of the agencies involved attended. At that meeting, the following changes in the plan were recommended:

- 1) Public Service Company representatives agreed to immediately notify the Weld County Sheriff as to the incident category.
- 2) A radio network should be established which will permit direct communications with Camp George West, the Health Department, and the on-site command center.
- 3) Field team organization has been corrected by the Department's internal plans.
- 4) The command post for the responding organizations will be physically separate from PSC's command post; they will be using State Patrol's mobile command center.
- 5) The EPA and FDA has recently issued protective action guidelines for radioactively contaminated agricultural products and are to be referenced and used.

Mr. Hazle pointed out that despite the problems mentioned, many things were carried out very well. Mr. Montgomery added that, for the first time, hospitals participated in an exercise and they carried out their part very well. The changes recommended should be mailed to the respective organizations shortly. The plan will continuously be updated.

The Rocky Flats plan is developing very slowly. The Department of Military Affairs is responsible for writing and testing it. The Health Department is committed to providing them with all possible assistance. There was a brief discussion of possible internal problems with the Department of Military Affairs which may be contributing to the delay.

Mr. Hazle stated that it has been proposed to Rocky Flats to use the Fort St. Vrain plan with appropriate modification.

Mr. Montgomery said that recently Rocky Flats has been increasing its effort to formalize a plan. However, the maximum credible accident still remains in doubt. Further, Protective Action Guidelines will have to be developed.

Concerning transportation accident response, Mr. Hazle stated that the Department does have a plan which has been frequently tested with actual real or potential accidents. Colorado is also under contract through the Western Interstate Nuclear Compact to give or receive assistance as necessary.

Dr. Damrauer asked what coordination the Department of Military Affairs was responsible for.

Mr. Hazle responded that law enforcement, civil defense agencies and other such agencies needed to be involved and that the Health Department has no feel for the degree of their involvement. The Department of Military Affairs does have a much broader base in that particular area.

Colorado State University Incident

Mr. Mattson described a CSU incident involving krypton-85. The radiation dose involved was not significant, however, this Division was very concerned about a lack of security.

A nitrogen color-coded cylinder, owned by Empire Welding was filled with Kr-85 by CSU. During the Christmas holidays, the cylinder was removed from CSU by Empire and CSU representatives and the krypton released to the atmosphere at Empire's Denver facility.

When the incident was reported, Empire Welding recalled all of the cylinders it had shipped, as many of their nitrogen cylinders are used to refrigerate food.

The cylinder in question was located. It had been evacuated and refilled with nitrogen and contained 5 mCi of Kr-85.

On January 4, an inspection of CSU was conducted. It was learned that the approval for the project using the krypton was given in 1967, and that no one initially working with it was still there. Eight items of noncompliance were noted:

- 1) Cylinder labeling;
- 2) storage area labeling;
- 3) failure to notify workers of a possible radiation hazard;
- 4) inadequate security;
- 5) transfer of radioactive materials to an unlicensed individual;
- 6) failure to provide adequate survey by the Radiation Safety Officer;
- 7) use of radioactive material without the approval of the Isotopes Committee;
- 8) failure to maintain use records between 1970-1973.

Additionally, it was recommended that:

- 1) There be a time limit on use authorizations issued by the University.
- 2) An evaluation be made of the money and manpower spent by the University on the radiation safety program.

CSU has since asked for an additional full-time graduate research assistant and a half-time secretary. While the incident was unfortunate, some important lessons were learned.

Mr. Hazle asked Mr. Mattson to address another incident at St. Anthony's Hospital not related to the Regulations, but which concerns the medical community. It emphasized the importance of notifying the Department so that information from consultants may be obtaining to assist in mitigating the consequences of situations.

Dr. Goodman said he'd rather describe the incident. A phosphorus-32 injection was to be administered to an individual. When a technician asked for the individual in the waiting room by name, a patient stood up and came forward, and he was introduced to Dr. Goodman who gave him the injection.

Later it was learned that the individual injected was not the intended patient, but another patient with a similar name who was partially deaf.

The Health Department was notified, and with the aid of the Nuclear Regulatory Commission, located a nationally prominent expert in phosphorus dosimetry to act as a consultant. The patient was hospitalized and administered a drug to help remove the radioactive phosphorus. While he did react to the drug, he has shown no adverse effects due to the radioactive material administration.

Mr. Hazle stated that the Nuclear Regulatory Commission can contract with experts in such emergency situations; so it is important for licensees to notify the Division if there is a problem.

Dr. Goodman said that a program is being devised to eliminate such occurrences in the future.

Radiation Pharmacy Regulations for Colorado

Mr. Montgomery has worked with the Colorado Board of Pharmacy. He stated that currently Mini-Dose is the only radiopharmacy in Colorado. It distributes individual radioactive material doses to their customers (hospitals). Originally everything they supplied was from other pharmacies and was FDA approved. Now they have designed their own generators. At first, neither FDA nor the Colorado Board of Pharmacy would comment on this procedure. On the recommendation of our medical advisors and our health physics evaluation, they were licensed for the generator and the attendant procedures.

Now FDA claims that the generator must be evaluated under an Investigational New Drug application. Further, for an intrastate operation, the State Board of Pharmacy must approve the Mini-Dose procedure.

The Colorado Board of Pharmacy has set up a subcommittee to study the issue. It is uncertain whether they will require anything in addition to a registered pharmacist on the premises during all operations.

Dr. Goodman asked whether a regular pharmacist or a radiopharmacist would be required.

Mr. Montgomery believed they only wanted a regular pharmacist.

Dr. Lemon stated several authorities believe radiopharmaceuticals should not be considered pharmaceuticals because only the radioactivity is important, and they do not act as drugs.

1976 Committee Report to the Governor

After discussion, it was decided to compile the minutes of the 1976 meetings and add to them a cover letter (1) highlighting the topics of the meetings and (2) listing future matters to be discussed during 1977.

ERDA Waste Disposal Project

Mr. Hazle stated that Governor Lamm was sent a letter from ERDA regarding a study for long-term radioactive waste disposal in geological formations. Governor Lamm has responded that he was interested in looking further into their proposal. No details are yet available. Previously in 1972, Governor Love's Environmental Advisory Council recommended that there be no radioactive waste disposal sites in Colorado. This item was brought to the attention of the Committee as an item of information only. A copy of the correspondence in this matter will be appended to the meeting minutes.

There being no further business, the next meeting was set for 2:00 p.m., May 12, 1977, at the Colorado Department of Health, Room 250.

Radiation Advisory Committee Report
May 12, 1977
Room 250
Colorado Department of Health
Denver, Colorado

Committee Members Present:

R. Beverly, Chairman
C. Piltingsrud
O. Lee (for C. Millen)
N. Goodman, M.D.
S. Lock
J. Lemon, M.D.

Committee Members Absent:

J. Ward
W. Wenzel, M.D.

Department Staff Present:

W. Jacobi
C. Mattson
L. Grossman
T. Vernon, M.D.
J. Pollock
R. Gamewell

Guests:

H. Wahlman

Approval of the minutes from the February 10, 1977 meeting.

Chairman Beverly called the meeting to order. The minutes were accepted; however, it was noted that the 1972 recommendations from Governor Love's Environmental Advisory Council were not appended.

Old Business

1. The Rocky Flats Monitoring Committee had sent the Advisory Committee a copy of its minutes, and expressed the hope that they would continue to do so.

2. The Annual Radiation Advisory Committee report was sent to Governor Lamm.
3. Professor McCormick should be given formal recognition for his service on the Advisory Committee. (Plaque has been awarded to Professor McCormick for his service to the Department).

Discussion with Dr. Anthony Robbins

Dr. Robbins had been invited to the meeting to discuss his philosophy concerning the functions of the Radiation Advisory Committee. However, Dr. Robbins was unable to attend. Mr. Beverly asked that this discussion be scheduled for the next meeting.

"Incidents" at Rocky Flats

A summary of Curium, Cesium, and Jefferson County Airport "incidents" at Rocky Flats was presented by Mr. Gamewell.

Curium: At the March 29, 1977 monthly meeting between Rocky Flats and CDH personnel, it was mentioned that Rocky Flats had done stack monitoring for Curium. When questioned, they could not give further information.

At the April 26, 1977 monthly meeting they presented a report on their acquisition, handling, and disposal of Curium. They had obtained 10 grams to use as a tracer in experiments, for which special facilities and handling equipment had been built. This facility monitored for Curium in the stack, and before the filter plenum. There were insignificant amounts of Curium detected in front of the filter plenum. There was no evidence that any Curium had been released.

Dr. Vernon stated that the major issue was that because Rocky Flats had not made a statement concerning the presence of Curium, fears are aroused that the plant is doing things which the Health Department does not know about.

In the April meeting between the plant and CDH personnel, they gave what is reported to be a complete inventory of all radioactive materials on site.

Mr. Gamewell stated that the Rocky Flats personnel have promised to keep the Department updated on the status of all radioactive material at the plant. This is now being done at the monthly exchange of information meeting.

Cesium:

Dr. Carl Johnson reported to the Jefferson County Board of Health that some soil samples taken by Dr. Johnson's method of soil sampling showed abnormal Cesium levels. These samples were taken east of Rocky Flats.

The Department has sampled in the area, and also "background" areas. It will take three months to analyze these for Cesium. Additionally, soil samples collected over the last several years will also be analyzed for Cesium.

When analyzing reports in this area, one must consider that the method of sampling, the method of analysis, the characteristics of the soil, and the local meteorological conditions can all affect the results of a sample in addition to any alleged releases.

The federal government feels that Dr. Johnson's method of sampling introduces a bias, and that his results, if reported on an area basis, would be lower than the federal government's results. Some C.S.U. data for high mountain samples indicate Cesium levels higher than those around Rocky Flats. The Department's analysis is not complete enough to give any results.

Jefferson County Airport:

On April 18, 1977 it was reported to the Department that flights into the Jefferson County Airport had been apparently carrying material for Rocky Flats. The airport manager was not allowed to have any information concerning the flights. He became concerned for the safety of airport personnel. Being unable to get information from Rocky Flats, he closed the airport to those flights.

The Department had previously been informed that occasionally small amounts of Plutonium were shipped by air. But no mention had been made of the flights going to the Jefferson County Airport.

This "incident" reveals two problems: the lack of adequate information; and what is the degree of hazard from these shipments.

Ms. Lock asked what control the state has over the transportation of Radioactive Material.

Mr. Gamewell replied the state has authority over intrastate shipments. Interstate shipments are covered by the Department of Transportation, which supercedes state regulations.

It is the point of origin and the destination which determine whether it is a interstate shipment.

In regard to military shipments, states have neither knowledge or control over them.

Mr. Pollock added that Oregon had unsuccessfully tried to control the shipment of reactor fuel elements.

Rocky Flats Emergency Response Plan:

Mr. Pollock addressed this topic and made the following points:

1. A meeting was held last month with CDH, DODES, General Weller of the Colorado Department of Military Affairs, and Jim Monaghan of the Governor's office.

Mile posts were established for the completion and testing of the emergency response plan. The contemplated date of completion of the written plan is December 30, 1977 with tests and revisions as necessary during 1978.

2. The first two mile posts (both set on May 1, 1977) have been completed as follows:
 - A. Agreement was reached that the principal agencies to be included in the plan, and that the plan outline could be based on the Ft. St. Vrain Plan.
 - B. A meeting was held between the Department of Military affairs and the Emergency Services Directors of Adams, Boulder, Denver, and Jefferson Counties. It was agreed that these individuals would act as the coordinating individuals for county inputs into the emergency plan.
3. The next set of mile posts to be completed by June 15, 1977 involve the completion of "Strawman" Drafts of Annexes to the Plan and distribution to interested agencies.
4. Governor Lamm has indicated that he is going to appoint an Ad Hoc Committee of the Rocky Flats Monitoring Committee to monitor the plan development.
5. The Colorado Department of Health has been meeting with Rocky Flats personnel to develop Protective Action Guides (PAG). These PAG's would be used in the case of an emergency at the plant to decide what action, if any, is required based on the type of incident and amount of material released. At this point, we are nearing agreement on the basis of calculations to be used for determination of meteorological dispersion of material and the methods of estimating doses to individuals in the population. Completion of the PAG's is scheduled for July 1, 1977. Mr. Pollock emphasized that this plan is for an on-site incident. A plan for off-site (transportation) incidents will be developed separately.

Stolen and Lost Radioactive Materials:

1. Mr. Mattson stated that on February 23, 1977, three moisture-density gauges were stolen from the Eyrich Construction Company. That night, Mr. Montgomery received a call from the Denver Fire Department stating that radioactive material had been thrown into the South Platte River by three (3) juveniles. It was learned that the "material" was two of the gauges. The third gauge was with the juveniles. These gauges contained Cesium and Americium sources.
2. On March 28, 1977, the Department received a call stating that "Radiation" had been found near the Stapleton Airport fence. It was determined that the packages were nuclear medicine shipments. The workers who found them were monitored with negative results. The package measured 16 mR/hr at the surface. Both packages were picked up by Mini-Dose Labs, Inc. of Denver - one of the two consignees - for disposal.
3. On April 8, 1977, the Department was notified that a package containing radiopharmaceuticals was leaking at the Colorado Springs Airport, and had contaminated an individual. The plane was stopped in Denver, where it was surveyed with negative results. The contaminated individual was also surveyed. The amount of contamination he received was below the detectable limits of the Department's survey meters. The leaking box contained a bottle of 10 microcuries of Iodine-125 in a pint of solution. Approximately one-third had leaked.

4. On April 1, 1977 it was reported that a radium needle had been stolen from Rocky Mountain Osteopathic Hospital. The Department immediately surveyed the surrounding neighborhood.

On April 4, members of the Department conducted a survey of the hospital. It was not found, but another, unauthorized Radium use was found.

The Department has responded to calls from people who thought they found it, but all were nails, rather than the radium needle.

The security of the Radium at the hospital was inadequate (for which they were cited). The hospital volunteered to cease all therapy until the Health Department's investigation has been completed.

Budget Actions:

Mr. Grossman reported that the Radiological Health budget had been cut six (6) positions from what was requested, which included an increase of two positions.

Another request is to ERDA through Governor Lamm for two positions and laboratory support - approximately \$245,000 for the first year - to monitoring Rocky Flats. ERDA said they will consider the request. Mr. Gamewell added that to date monitoring at Rocky Flats has cost the State \$335,000.

A third request was for the Remedial Action Program in Grand Junction. The federal government has appropriated an additional \$3 million to this project last year. Colorado was to match that with \$1 million. But the Joint Budget Committee recommended only \$12,500.

In the House, the caucus had recommended \$150,000 for the Grand Junction program. It was reported that the Senate would not oppose this.

Fort Saint Vrain Security Breach:

Mr. Lee explained that on May 11, an NRC inspector had entered the facility without being challenged by the security guards until he reached the outside of the control room. As a result of this, and because a package had not been inspected upon entrance to the facility, Ft. St. Vrain has been cited with civil penalties.

There being no further business, the next meeting was set for August 18, 1977.

/jas

minutes
May 12, 1977
Minutes

PUBLIC MEETING - JUNE 4, 1977, AURARIA CAMPUS

Selected Informative Items from the Proceedings:

The general format was to offer four broad topic areas. Each of the first three began with information presentations followed by Panel discussion. The intent was to disseminate information, not necessarily in depth. Please refer to your copies of the Agenda for specific formal presentation titles and participants' names. Demonstration or exhibit rooms were utilized adjacent to the second floor entry.

Session I. Materials at Rocky Flats and their Monitoring

Dr. Yoder (Rockwell International) Introduction to Materials and Monitoring with slide presentation

Principal material handled at Rocky Flats: enriched and depleted uranium, Plutonium, Americium, Beryllium

Capability of handling: natural uranium, Thorium, Uranium-233. Latter two not being handled at present.

Independent Review programs including new activity and review procedures discussed
Sampling statistics of Emissions from Plant site as part of Environmental Monitoring Program

Documentation of Environmental Reports open and available.

No water presently being released except from sanitary system. Eventually all water will be totally reused

Levels of radioactive material into Broomfield Reservoir not high enough to warrant decontamination now. No concentrating effect from drought conditions.

Q: Plant uptake?

Dr. Y.: Not in sediment of reservoir. Generally uptake of Pu exceedingly small.

Also, no ready transfer across gut into blood stream.

Q: Chelating agents?

Dr. Y.: The Pu is in form of Plutonium oxide; relatively insoluble.

Dr. Cobb: Quoted study - Acid soils below pH 6 more likely to increase Pu uptake by plants.

Dr. Y.: Large difference between Plutonium oxide and other forms of Pu compounds.

Q: How dangerous is Pu?

Dr. Y.: Pu is an alpha emitter, a bone seeker; studies based on comparison with Radium: exposure of .1 microcurie - no effects over a lifetime

Q: Pu toxicity?

Dr. Y: Pu is a carcinogen - takes years to produce effect. "Guides that we presently have are adequately conservative."

Dr. Cobb: Question that. May be a revision even by a factor of 10.

Dr. Johnson: Concentration in tracheo-broncho lymph nodes may need standards revision by a factor of about 200.

Dr. Cobb: Gonadal implications: Only takes 1 disintegration to result in mutation

Dr. Y: Pu per se not a direct cause of leukemia; never been implicated.

Dr. Cobb: Concern that alpha emitters that lodge in gonads not carefully studied as yet, 30 years of plutonium having been around.

Q: Why not large scale investigation being done?

Dr. Y.: Los Alamos study presently under way.

Rocky Flats encourages employees to join Transuranium Study; voluntary.
Difficulty in getting people to agree because of the magnitude of tissue required (lung, liver, gonads, spine)

Dr. Cobb: Long and difficult study collecting autopsy data; goal: 750 autopsies
General level of autopsies is down because of lowered hospital requirements
Cases completed to date: 170.

Q: Do you have a reactor at Rocky Flats?

Dr. Y.: We have a critical facility which uses radioactive materials.

Session II. Monitoring Methods, Standards and Housing

Mr. Hazle (CDH) Standards and Their Application

Our general philosophy is no threshold for radiation.

Enumerated agencies formulating standards

Variation between an individual in the population and the population in general
in maximum permissible doses for adults in rems/yr.

Level of bioeffect - what chance in a million are you willing to take?

Calculate dose that results in that bioeffect depending on solubility of radionuclide.

Discussion of how standards are evolved; exceedingly complex and constantly under review. Basically interested in Zero radiation exposure.

Dr. Johnson (CDH) Evaluation of Hazard, Sampling

Value for Pu perhaps intentionally misleading if core samples in depth are taken.

Plutonium oxide particles are subject to resuspension in the potentially respirable surface dust. Collected loose wind-blown material on surface; .1 cm ave. depth

Up to 5 micron diameter particles separated.

Most atmospheric dust we inhale transported to lymph nodes. Large amount of radioactive material can be inhaled in a lifetime.

Panel discussion:

Method of sampling and processing techniques should be settled by scientific forum.

Discussed ultrasound effect on Plutonium oxide particles. Is particle size changing?

Consider not just size of particle but Pu content of such particle.

Nonradioactive inert particle may be a more likely carcinogen than Pu particle
(Paper to be presented 6/20, UCMC rm. 1601) Weathered Plutonium may be more dangerous than the kind that could be deposited next week.

Mr. Anderson: Basic issue; Is new development near Rocky Flats going to be detrimental to someone's health? Discussion of criteria for developers of subdivisions.

Session III. Transportation, Security and Emergency Response

Mr. Dickason (ERDA) Slide Presentation - Shipments of Strategic Materials

Film showing tests of containers and force of impact studies.

Discussion of handling of waste, transportation safeguards program, courier training and standards.

Mr. Montgomery (CDH) - Equipment, Initial and timely notification the critical part of Emergency Response Plan, Communications. Assessment of Impact of an incident. Evacuation of population and other action guides. Yearly exercise of Plan & Review

Mr. David Lawton (Dept. Military Affairs) - Emergency Response Plan Status

Present plan inadequate. Use of Ft. St. Vrain plan as model.

Timetable for final distribution of Plan: 12/30/77

Q; Who pays for implementation of the preparation?

Mr. L.: Within present budget.

Q: Will hospitals participate?

Mr. L.: Cannot require hospital to accept patient contaminated by radiation.

Dr. Cuthbert Owens contact man at UCMC

Maximum critical accident: 100 gm Pu release from a filter plenum

Session IV. - Government and Rocky Flats

Mr. William Lamb (ERDA) We are trying to be as totally open and above board as possible. Our credibility is really being attacked. The public has to deal with the credibility of the media.

Q: What is the maximum credible accident?

Mr. Lamb: That is the Emergency Response Plan's answer.

Mr. Wirth: Fire at high winds.

Mr. Williams: Airplane accident - criticality occurrence.

Modus operandi modified system so that fire not likely to be major accident, but legacy of 2 previous fires colors our perspective.

Response plan has to be geared to probability of occurrence.

Mr. Wirth: Mission to make Rocky Flats as safe as possible.

Mr. Lamb: Environmental Impact Study timetable: August, 1977

Large capitalization at Rocky Flats, therefore cannot move facility.

Mr. Wirth: Let's get on with the job of phasing out.

Mr. Monaghan: How do we build confidence? By independent monitoring.

The public does need to know if threats occur and public officials should be held accountable to advise the public.

Dr. Cobb: Part of the problem in public mind is afraid of a change in the mission, such as a fast-breeder reactor at Rockwell. "We're scared."

General: The Rocky Flats Monitoring Committee and Bob Damrauer felt that we put on an excellent meeting and were pleased with the willingness of the participants and with their presentations and involvement.

Attendance was not as great as hoped for, especially of concerned citizens whose primary interest is in the area of monitoring, safety and management.

Advance publicity by the news media was minimal and this was a true disappointment.

Fran Connor - 6/13/77

ROCKY FLATS MONITORING COMMITTEE

1100 - 14th Street
Denver, Colorado 80202
Telephone (303) 623-5672

MINUTES OF REGULAR COMMITTEE MEETING

DATE: June 14, 1977

LOCATION: University of Colorado at Denver, Room 56

ATTENDING:

R.F. Monitoring Committee: Jack Elliott, Chairman
Pam Solo
Jim Wright
and Bob Damrauer, former Member and Chairman
Carolyn Morse, former Secretary
Fran Connor, Secretary
Guests: Bert Christ, ERDA
Fred Gillies, Denver Post
Marilyn Werkema, Rockwell

DISTRIBUTION
OF MATERIALS

"Radioactive Radiations and Their Biological Effects" - 2 copies
each, one to be an annotated critique with commentary and
returned to the author.

Highlights of June 14th Public Meeting

Outline of Emergency Response Plan being formulated under the
aegis of the Department of Military Affairs

NEW MEMBER

The Chairman announced the appointment of Dr. William Hendee to
the Monitoring Committee replacing Bob Damrauer who has resigned.
Dr. Hendee is Professor of Radiology, U.C.M.C.

JUNE 14th PUBLIC
MEETING

Bob Damrauer summarized the effectiveness of the meeting. A
tremendous effort was expended by all participating groups. In
attendance were perhaps 40 concerned citizens; a disappointing
number. Publicity had been difficult to obtain. A central
location may not be the most desirable site for such a meeting.
Future meetings should probably be more local and perhaps
utilize the city government structure for assistance. Tentative
plan is for 4 meetings a year beginning with the City of Broomfield.
Recent meeting in Boulder had good local attendance.

NSF GRANT

Importance discussed; new ways of disseminating information to the
public, continue public meetings, organize seminars, TV, News-
letter etc., suggestions welcome.

BROOMFIELD

CDM advising Broomfield to limit access to Reservoir area.

FUTURE
MEETINGS

July 6, 9:00 am, Camp George West: Emergency Response Plan.

For ad hoc Committee and interested persons

July 11, 7:30 pm, UCD, Rm. 56. Regular monthly meeting of

RF Monitoring Committee; guest Mr. Earl Kunz: Rockwell lawsuits

August 9. time not determined, UCD, Regular monthly meeting of RF Monitoring Committee; guest: Mr. Voeltz, Epidemiological presentation (Los Alamos)

Late August: Committee pot-luck supper, guests of the Bouldings in Boulder, also with Gilbert White

September: possible public meeting in Broomfield

October: Ken Wright to arrange for presentation by Fire Inspector at RF, second presentation on Criticality

Plan to emphasize task-oriented assignments to committee members including reports and their distribution. Possibly reduce the number of regular monthly meetings. Consider a presentation by a guest or subcommittee chairman at each meeting.

MATERIALS
AVAILABLE

Fire Safety Design Review, Rocky Flats Plant (TERA) Dec. 1976
Complete report available for inspection. Introduction and Summary being distributed to committee members.

Ft. St. Vrain Radiological Emergency Response Plan
Limited number of copies available for inspection - (Mailed or presented to ad hoc committee members)

F.C. 6/30/77

Note to RFMC members: If you are unable to review the publication, "Radioactive Radiations and Their Biological Effects", please return the 2 copies by Aug. 9 to:

Rocky Flats Monitoring Committee
1100 - 14th Street
Denver, CO 80202

Attn. Fran Connor

Thank you.

ROCKY FLATS MONITORING COMMITTEE

1100 - 14th Street
Denver, Colorado 80202
Telephone (303) 623-5672

AGENDA

FOR: Rocky Flats Monitoring Committee Regular Monthly Meeting

DATE: Monday evening, July 11, 1977, 7:30 p.m.

PLACE: UCD: 1100 - 14th Street, Denver, Room 56

1. Mr. Earl G. Kunz, Rockwell International
Pending lawsuits against Rockwell, Dow and ERDA (Church, Great
Western and Good)
Tort Claim by Twin Lakes Joint Venture
2. Discussion of Emergency Response Plan Meeting at Camp George West, July 6
3. ERDA Report on Container Testing
4. Plan for evening with the Bouldings in Boulder - August.
5. Plans for future meetings:

August 9: Mr. Voeltz, Epidemiological presentation

September: Possible public meeting in Broomfield

October: RF Fire Inspector and Criticality presentation

General discussion re time, next and future monthly meetings

MINUTES OF MEETINGS OF THE ROCKY FLATS MONITORING COMMITTEE

Date: April 14, 1977

Location: University of Colorado at Denver, room 56

Members in attendance: Chris Crosby
Bob Damrauer
Rosemary Dooley
Rued Kelley
Pam Solo

Others in attendance: Dick Gamewell - GDM
Bernie Haish - University of Colorado
Haley Wolfson - Environmental Action

ITEMS

ACTION

1. Cesium levels near RF

Bob Damrauer reported to the Committee on his meeting with the Governor which included people from GDM and EPA on Cs levels at RF. GDM and EPA advised the Governor that the levels found by Johnson were within world wide fallout levels.

2. Cesium and other radionuclides at Rocky Flats

Bob Damrauer reported his conversations with Robert Seik at GDM and Jim Stout of Rockwell. It was made public at the March Joint Information exchange meeting that Cesium was being monitored for in stacks at Rocky Flats. Damrauer will attend a meeting at Rocky Flats at which all radionuclides used at Rocky Flats will be listed and general amounts present will be given.

3. Studies for GDM monitoring of Rocky Flats

Bob Damrauer reported that Governor Lamm will deliver a letter to Robert Fri, acting director of EPA, requesting funds from EPA be provided so that GDM can continue its monitoring of Rocky Flats.

Dick Gamewell of GDM pointed out that proposed Long Hill cuts would reduce the number of employees of the Occupational and Radiological Health Division of the Health Department by from four to six position. This would endanger monitoring efforts of the Rocky Flats Plant by GDM. Rued Kelley said that he would talk to members of the Republican Caucus on this matter.

HUGHES OF THE NRC APRIL 11, CONT

4. Safety Analysis Reports on buildings at Rocky Flats

Bob Larbauer reported on the April 12th meeting at Rocky Flats. Rockwell will have a schedule for a complete plant safety analysis report in May. The General Plant Safety Analysis including the new 377 Building will be completed by January 1, 1978.

MINUTES OF MEETINGS OF THE ROCKY FLATS MONITORING COMMITTEE

Date: May 12, 1977

Location: University of Colorado at Denver, room 56

Members in attendance: Bob Dammner

Carl Dean

Ken Edwards

Jack Elliott

Jeff Sutherland

Others in attendance: Francis Connor - prospective employee of H.

Burt Crist - ERDA

Judy Davidson - American Friends Service Committee

Judy Huxley - Rocky Flats Action Group

Don Kinney - Channel 7 News

Richard Riggs - Channel 7 News

Marilyn Williams - Lockhoff

Paul Allison - Denver Post

ITEM

AGENDA/ITEMS

1. Election

A proxy ballot was taken by Carolyn. Jack Elliott has been elected chairman, Gail Grady has been elected vice chairman.

2. Recent NF Controversies

Discussion centered around Don Kinney's speech on Rocky Flats. It was brought out in this program that Rocky Flats had processed fuel rods for an experimental atomic reactor. Bob Dammner emphasized that to his best knowledge, fuel rods had been fabricated, but that no spent nuclear fuel rods had ever been reprocessed at Rocky Flats. Burt Crist of ERDA affirmed this. Don Kinney pointed out that this program was the first in which Rocky Flats had admitted anything about dealing with fuel rods of any nature. The question arose about credibility and whether or not the 1977 fire. Bob Dammner commented that until many more tests were completed all discussion on this topic was speculative.

3. June 6th Public meeting

Bob Dammner outlined the topics that will be discussed at the meeting. They are:

1. Materials and Monitoring
2. Monitoring Methods, Standards, and How long
3. Transportation, Emergency Response, and Security
4. Government and Rocky Flats

The meeting will begin at 2:00 PM and scheduled talks and panels will end at 3:00. Time for informal questions is scheduled for after 3:00. A formal agenda will be available by May 25.

ROCKY FLATS MONITORING COMMITTEE

1100 - 14th Street
Denver, Colorado 80202
Telephone (303) 623-5672

AGENDA FOR ROCKY FLATS MONITORING

COMMITTEE PUBLIC MEETING

Date: Saturday, June 4th

Time: 8:00 AM

Place: Auraria Science Building, Lawrence and 12th Streets, Large Lecture Hall, room 119

Directions: Enter Room 119 from Second Floor

- Format: (1) Because of the complexity of many issues, we realize that many topics will not be covered in depth. Our hope is to disseminate information, but we realize this meeting is not the perfect vehicle. It is the beginning and more meetings on more limited topics may follow.
- (2) The Meeting has been divided into four broad topic areas. The first three of these will be run as follows. Information presentations will begin the session and last less than 45 minutes. A group discussion will follow moderated by a Rocky Flats Monitoring Committee member. Questions will be directed to the participants by a member of the press. The audience will be able to fill out question cards during the session; these will be given to the press person and, as time permits, these questions will be asked and discussed.
- (3) Time limits will be strictly adhered to.
- (4) The fourth meeting will be less structured centering around a discussion of the relationship of government to the Rocky Flats Plant and the rights of Colorado citizens with respect to the Rocky Flats Plant.
- (5) At the conclusion of the fourth session there will be ample time for small group discussions between the participants and the audience.
- (6) In addition, there will be 3 or 4 rooms adjacent to the Lecture Hall in which various demonstrations will be set up. Already known to be participating are the Rocky Flats Plant, and the Rocky Flats Action Group. These will be open to the audience throughout the day.

8:15 - 8:30 Welcome and Introduction to Day's Events
Dr. Robert Damrauer, Rocky Flats Monitoring Committee Member

8:30 - 9:45 Session I : Materials At Rocky Flats, and Their Monitoring

Formal Presentation: Dr. Robert Yoder, Director of Health, Safety and Environment, Rockwell International, Rocky Flats Plant (25 -30 minutes)

Panel Discussion: Moderator - Dr. Robert Damrauer, Rocky Flats Monitoring Committee member
Discussion Leader - Mr. Daniel Horsey, Reporter, Broomfield Sentinel
Participants :
Dr. Robert Yoder, Director of Health Safety and Environment, Rockwell International, Rocky Flats
Mr. Al Hazle, Director of the Occupational and Radiological Health Division, Colorado Department of Health
EPA Representative
Dr. Carl Johnson, Director, Jefferson County Health Department
Mr. Thomas Duran, Laboratory Specialist, Public Works Department, City of Broomfield

9:45 - 11:00 Session II : Monitoring Methods, Standards and Housing

Formal Presentations: "Standards and Their Application"
Mr. Al Hazle, Director of the Occupational and Radiological Health Division, Colorado Department of Health (20 - 25 minutes)

"Evaluation of the Hazard to Residents of Areas Contaminated with Plutonium and Other Radionuclides", Dr. Carl Johnson, Director, Jefferson County Health Department (10 - 15 minutes)

Panel Discussion: Moderator - Dr. Robert Damrauer, Rocky Flats Monitoring Committee member
Discussion Leader - Mr. Fred Gillies, Staff Writer, Denver Post
Participants:
Mr. Al Hazle, Director of the Occupational and Radiological Health Division, Colorado Department of Health
Dr. Carl Johnson, Director, Jefferson County Health Department
Dr. Robert Yoder, Director of Health, Safety and Environment, Rockwell International, Rocky Flats
EPA Representative
Mr. Harold Anderson, Jefferson County Commissioner
Dr. John Cobb, Lamm-Kirth Task Force Member, Chair of the Department of Preventive Medicine at the University of Colorado Medical School

11:00 - 12:15 Session III : Transportation, Security, and Emergency Response

Formal Presentations: "Transportation Safeguards"
Mr. Donald Dickason, Director, Transportation Safeguards
Division, Albuquerque Operations Office, ERDA (15 minutes)

"Rocky Flats Emergency Response Plan" Mr. James Montgomery,
Senior Health Physicist, Occupational and Radiological
Division, Colorado Department of Health (15 minutes)

"Review of Rocky Flats Emergency Response Plan Status"
Mr. David Lawton, Disaster Preparedness Specialist,
Division of Disaster Emergency Services, Colorado Department
of Military Affairs (15 minutes)

Panel Discussion: Moderator - Mr. G. Christian Crosby, Vice
Chairman, Rocky Flats Monitoring Committee
Discussion Leader - Ms. Jo Ann Ellerbrock,
Reporter, Free Enterprise
Participants:
Mr. Donald Dickason, Director, Transportation
Safeguards Division, Albuquerque Operations
Office, ERDA
Mr. James Montgomery, Senior Health Physicist,
Occupational and Radiological Health Division,
Colorado Department of Health
Mr. David Lawton, Disaster Preparedness Specialist,
Division of Disaster Emergency Services, Colorado
Department of Military Affairs
Reed Kelley, Rocky Flats Monitoring Committee
member
Ms. Delores Krieg, Traffic Manager, Rockwell
International, Rocky Flats
Mr. Edward Young, Director, Security and
Safeguards, ERDA, Rocky Flats

12:15 - 1:30 LUNCH

1:30 - 2:30 or 3:00 Session IV : Government and Rocky Flats

Panel Discussion: Moderator and Discussion Leader: Mr. Don Kinney,
Reporter, KOA TV News
Participants:
Mr. William Lamb, Area Manager, Rocky Flats Area
Office, ERDA
Mr. R.O. Williams, Plant Manager, Rockwell
International, Rocky Flats Plant
Congressman Timothy Wirth
Governor Richard Lamm or his representative
Dr. Anthony Robbins, Director, Colorado Department
of Health
Mr. George DiCiero, City Manager, City of Broomfield
Mr. John Elliott, Chairman, Rocky Flats Monitoring
Committee

2:30 or 3:00 until discussion ends Small Group Discussions

Attached to this agenda is a list of the displays planned by the Rocky Flats Plant. These displays and demonstrations are intended to explain and amplify the various issues discussed in the meeting.

EXHIBITS

The exhibit material to be presented in connection with the meeting will provide background information and additional detail in a number of areas to be covered in the panel discussions.

General Information

A laboratory display describing the various types of radiation and radioactive materials, their source, either natural or man-made, methods and equipment for radiation detection and measurement and units we use in discussing radiation.

Monitoring at Rocky Flats

Detailed information on the various air, water and soil monitoring programs in the environs of Rocky Flats and the surrounding communities including demonstrations of the various kinds of monitoring instruments used to carry out the programs. Some examples of soil sampling methods will be discussed and illustrated.

Transportation

A detailed look at the world of transportation of radioactive materials including packaging requirements, regulations for the shipment of radioactive materials and the various transportation systems and equipment used. Various shipping containers will be on display along with models and information on trucks, railcars and aircraft used.

To: Rocky Flats Monitoring Committee Members and Interested Persons

From: Carolyn

Subject: May Meeting

Date: May 1, 1977

The May meeting of the Rocky Flats Monitoring Committee will be held on Thursday May 12th at 7:30 a.m. at the University of Colorado at Denver in Room 56.

To: Rocky Flats Monitoring Committee Members and Interested Persons

From: Carolyn

Subject: May Meeting

Date: May 1, 1977

The May meeting of the Rocky Flats Monitoring Committee will be held on Monday, May 1st at 7:30 AM at the University of Colorado at Denver in room 5G.

TO: Rocky Flats Monitoring Committee Members, and Interested Persons
FROM: Carolyn

SUBJECT: Regular Meeting Time, Regular June Meeting Agenda

Date: May 26, 1977

From the questionnaires returned to me it seems Tuesday mornings are agreeable meeting times for most members. Jack Elliott has recommended that our regular meeting time be the second Tuesday of each month.

Our next regular meeting will be held on June 14th at 7:30AM at the University of Colorado at Denver in room 36. The agenda for this meeting is as follows:

1. Introduction of new secretary to the Monitoring Committee.
Introduction of any new members to the Monitoring Committee.
2. Discussion of Monitoring Committee Public Meeting held on June 14th.
3. Discussion of Information gathered from the questionnaires.
4. Discussion of the General Organization of the Monitoring Committee.
5. Update on recent developments regarding Rocky Flats.

NOTE: If you have not returned your questionnaire, please do so as soon as possible.

COLORADO DEPARTMENT OF HEALTH
4210 East 11 Avenue
Denver, Colorado 80220

RADIATION ADVISORY COMMITTEE MEETING - MINUTES
August 18, 1977

Chairman Beverly called the meeting together at 2:00 P.M. The minutes were approved as prepared.

The following minutes of this meeting are written from memory and notes taken. A malfunction of tape recording equipment precludes the writing of detailed minutes.

Committee Chairman Robert Beverly, called the meeting to order and asked if any additional agenda items were to be presented.

Al Hazle, indicated that a fifth topic concerning a revision of Part VI of the Draft Regulations was added and that all persons normally receiving notices of the meetings had been informed of this on Tuesday, August 16th by telephone.

Selma Locke, reminded the committee that if the Part VI topic was not on the original written agenda it could not be ruled on at this meeting (August 18, 1977)-only discussed.

Jim Montgomery, gave a brief update on the status of the Homestake Uranium Mill-Pitch Project application. Homestake has completed its written comments to all reviewing agencies including the NRC, EPA and Department of Health. These comments have not been reviewed as yet by these agencies.

Meetings and discussion are planned to resolve any remaining questions. Mr. Montgomery anticipated that the Department must be prepared to render its decision on granting of the license in 2-3 months.

The Mined Land Reclamation Board Hearings on Homestake were described. Mr. Montgomery described the Reclamation staff's attempt to convince the Board that the permit should not be granted due to the absence of sufficient information and data concerning the reclamation aspects.

The preparation of an environmental impact statement (EIS) on the Homestake Pitch Project was described by Mr. Montgomery. It appears that the Forest Service and the Nuclear Regulatory Commission will be writing the EIS with input from EPA, the Department and other state agencies.

Mr. Beverly, questioned whether NRC had the legal jurisdiction to write EIS for agreement States.

Robert Siek, replied that it was officially going to be written for the Forest Service. He briefly described the requirements of the National Environmental Policy Act and with the assistance of Argonne National Laboratory would provide the NRC in EIS reviews.

Dr. Neal Goodman, asked if it was really necessary to delay the company for several years while the EIS was being prepared.

Mr. Montgomery, estimated the EIS preparation might take 1-2 years.

Mr. Beverly, asked why the Department was requesting an EIS when the Environmental Report (ER) appeared to address most issues adequately.

Mr. Montgomery, replied that uranium mill siting considerations and proliferation were the primary reasons. These subjects cannot be addressed by Homestake. Also, a written summary of the ER should be prepared by a regulatory agency to provide a thorough and unbiased view of the project.

The second agenda item, the Rocky Flats Emergency Response Plan update, was described by Mr. Montgomery. Completion of the Protective Action Guides and established of plan development milestones were described. It was indicated that plan completion and publication was slated for January 1978. Mr. Hazle, described the plan for public hearings and education. The next topic, Division reorganization, was presented by Mr. Hazle. The Department's plans for development of solid and hazardous waste disposal programs were described. The Resource Conservation and Recovery Act was also described along with plans for a recycling program. To illustrate potential problems in the solid waste disposal area, Mr. Hazle briefly described a recent methane gas explosion at the site of an abandoned solid waste site where construction of a water main project was underway. The inclusion of uranium tailings piles in the Solid Waste Act was briefly mentioned. Mr. Beverly, asked if the state will have to pay for part of the tailings pile relocation program (ERDA Phase III) proposed by ERDA & EPA. Mr. Hazle replied "no" and indicated that Colorado has "gone on record" via a letter from Governor Lamm to ERDA emphasizing the state's position to require 100% Federal funding. Mr. Beverly, suggested that when the Phase III recommendations are published that the topic be included as an agenda item for an Advisory Committee Meeting. Mr. Hazle, described the next agenda item, Radiological Health program review by NRC. He described the two letters being sent by NRC concerning Agreement State program evaluation (i.e. one letter to the Department Executive Director and the other to the program Director). Uranium tailings pile inspection by John Kendig of the NRC was described. Copies of the NRC letters to Mr. Hazle and Dr. Robbins were distributed. Mr. Hazle briefly described each item contained in the letter.

RADIATION ADVISORY COMMITTEE MEETING - MINUTES (Cont'd)
Page 3

A final agenda topic was Part VI of the Department's draft radiation control regulations, presented by Mr. Hazle.

A historical summary of the Part VI development was given. The current (1976) version of Part VI was briefly described with the suggestion that the committee review and decide if it would be suitable for inclusion into the revised state regulations. Mr. Beverly appointed an ad hoc committee composed of Drs. Goodman, Lemon and Wenzel and Ms. Locke. Dr. Hendee was asked to serve as a consultant to the committee. Ms. Locke indicated that a representative from the Society of Radiologic Technologists should be invited to attend the meetings. Dr. Goodman indicated that the meeting would be open to the public and that any interested party could attend. Dr. Hendee expressed his willingness to assist the committee in any manner they wished.

Dr. Hendee, asked several questions regarding the legality of using 1974 and 1976 SSRCR Regulations instead of 1964 as required by Title 25 Article 11 CRS. Dr. Hendee expressed concern that the National Conference of Radiation Control Program Directors writes and publishes regulations with no public comment or hearings. Mr. Hazle indicated he would discuss this with the conference members.

Dr. Hendee asked if a licensee can be cited by the Health Department for a violation of an NRC regulation that is not in the Colorado Regulations. Mr. Hazle, answered "no."

The "ad hoc" committee agreed to meet at 3:00 P.M. on August 29. A special meeting of the entire Radiation Advisory Committee was scheduled for September 15, 1977. *This meeting has since been rescheduled 12:00 noon, September 12th in room 250 of the Colorado Department of Health.

Mr. Beverly scheduled the next regular Radiation Advisory Committee meeting on November 10, 1977, at the Health Department.

The meeting was adjoined.

Attendees:

Staff

Albert J. Hazle, CDH
James L. Montgomery, CDH
Robert D. Siek, CDH

Radiation Advisory Committee members

Dr. John Ward, CSU
Dr. Neal Goodman, St. Anthony Hospital
Dr. John Lemon, Mercy Medical Center
Ms. Selma Locke, G.R.M.H.
Mr. Robert Beverly, Chairman
Mr. Oscar Lee, representing C.K. Millen

Members absent:

C.W. Piltingsrud,
Rockwell Internation
Dr. Wayne Wenzel, Presbyterian
Medical Center
G.H. McCormick (resigned)

Guests

Dr. William Hendee, U.C.M.C.
Ms. Victoria Fallie, KWGN-TV

9/1/77

COLORADO DEPARTMENT OF HEALTH
4210 East 11 Avenue
Denver, Colorado 80220

RADIATION ADVISORY COMMITTEE MEETING - MINUTES
August 18, 1977

Chairman Beverly called the meeting together at 2:00 P.M. The minutes were approved as prepared.

The following minutes of this meeting are written from memory and notes taken. A malfunction of tape recording equipment precludes the writing of detailed minutes.

Committee Chairman Robert Beverly, called the meeting to order and asked if any additional agenda items were to be presented.

Al Hazle, indicated that a fifth topic concerning a revision of Part VI of the Draft Regulations was added and that all persons normally receiving notices of the meetings had been informed of this on Tuesday, August 16th by telephone.

Selma Locke, reminded the committee that if the Part VI topic was not on the original written agenda it could not be ruled on at this meeting (August 18, 1977)- only discussed.

Jim Montgomery, gave a brief update on the status of the Homestake Uranium Mill-Pitch Project application. Homestake has completed its written comments to all reviewing agencies including the NRC, EPA and Department of Health. These comments have not been reviewed as yet by these agencies.

Meetings and discussion are planned to resolve any remaining questions. Mr. Montgomery anticipated that the Department must be prepared to render its decision on granting of the license in 2-3 months.

The Mined Land Reclamation Board Hearings on Homestake were described. Mr. Montgomery described the Reclamation staff's attempt to convince the Board that the permit should not be granted due to the absence of sufficient information and data concerning the reclamation aspects.

The preparation of an environmental impact statement (EIS) on the Homestake Pitch Project was described by Mr. Montgomery. It appears that the Forest Service and the Nuclear Regulatory Commission will be writing the EIS with input from EPA, the Department and other state agencies.

RADIATION ADVISORY COMMITTEE MEETING - MINUTES (Cont'd)

Page 2

Mr. Beverly, questioned whether NRC had the legal jurisdiction to write EIS for agreement States.

Robert Siek, replied that it was officially going to be written for the Forest Service. He briefly described the requirements of the National Environmental Policy Act and with the assistance of Argonne National Laboratory would provide the NRC in EIS reviews.

Dr. Neal Goodman, asked if it was really necessary to delay the company for several years while the EIS was being prepared.

Mr. Montgomery, estimated the EIS preparation might take 1-2 years.

Mr. Beverly, asked why the Department was requesting an EIS when the Environmental Report (ER) appeared to address most issues adequately.

Mr. Montgomery, replied that uranium mill siting considerations and proliferation were the primary reasons. These subjects cannot be addressed by Homestake. Also, a written summary of the ER should be prepared by a regulatory agency to provide a thorough and unbiased view of the project.

The second agenda item, the Rocky Flats Emergency Response Plan update, was described by Mr. Montgomery. Completion of the Protective Action Guides and established of plan development milestones were described. It was indicated that plan completion and publication was slated for January 1978. Mr. Hazle, described the plan for public hearings and education. The next topic, Division reorganization, was presented by Mr. Hazle, The Department's plans for development of solid and hazardous waste disposal programs were described. The Resource Conservation and Recovery Act was also described along with plans for a recycling program. To illustrate potential problems in the solid waste disposal area, Mr. Hazle briefly described a recent methane gas explosion at the site of an abandoned solid waste site where construction of a water main project was underway. The inclusion of uranium tailings piles in the Solid Waste Act was briefly mentioned. Mr. Beverly, asked if the state will have to pay for part of the tailings pile relocation program (ERDA Phase III) proposed by ERDA & EPA. Mr. Hazle replied "no" and indicated that Colorado has "gone on record" via a letter from Governor Lamm to ERDA emphasizing the state's position to require 100% Federal funding. Mr. Beverly, suggested that when the Phase III recommendations are published that the topic be included as an agenda item for an Advisory Committee Meeting. Mr. Hazle, described the next agenda item, Radiological Health program review by NRC. He described the two letters being sent by NRC concerning Agreement State program evaluation (i.e. one letter to the Department Executive Director and the other to the program Director). Uranium tailings pile inspection by John Kendig of the NRC was described. Copies of the NRC letters to Mr. Hazle and Dr. Robbins were distributed. Mr. Hazle briefly described each item contained in the letter.

RADIATION ADVISORY COMMITTEE MEETING - MINUTES (Cont'd)

Page 3

A final agenda topic was Part VI of the Department's draft radiation control regulations, presented by Mr. Hazle.

A historical summary of the Part VI development was given. The current (1976) version of Part VI was briefly described with the suggestion that the committee review and decide if it would be suitable for inclusion into the revised state regulations. Mr. Beverly appointed an ad hoc committee composed of Drs. Goodman, Lemon and Wenzel and Ms. Locke. Dr. Hendee was asked to serve as a consultant to the committee. Ms. Locke indicated that a representative from the Society of Radiologic Technologists should be invited to attend the meetings. Dr. Goodman indicated that the meeting would be open to the public and that any interested party could attend. Dr. Hendee expressed his willingness to assist the committee in any manner they wished.

Dr. Hendee, asked several questions regarding the legality of using 1974 and 1976 SSRCR Regulations instead of 1964 as required by Title 25 Article 11 CRS. Dr. Hendee expressed concern that the National Conference of Radiation Control Program Directors writes and publishes regulations with no public comment or hearings. Mr. Hazle indicated he would discuss this with the conference members.

Dr. Hendee asked if a licensee can be cited by the Health Department for a violation of an NRC regulation that is not in the Colorado Regulations. Mr. Hazle, answered "no."

The "ad hoc" committee agreed to meet at 3:00 P.M. on August 29. A special meeting of the entire Radiation Advisory Committee was scheduled for September 15, 1977. *This meeting has since been rescheduled 12:00 noon, September 12th in room 250 of the Colorado Department of Health.

Mr. Beverly scheduled the next regular Radiation Advisory Committee meeting on November 10, 1977, at the Health Department.

The meeting was adjointed.

Attendees:

Staff

Albert J. Hazle, CDH
James L. Montgomery, CDH
Robert D. Siek, CDH

Radiation Advisory Committee members

Dr. John Ward, CSU
Dr. Neal Goodman, St. Anthony Hospital
Dr. John Lemon, Mercy Medical Center
Ms. Selma Locke, G.R.M.H.
Mr. Robert Beverly, Chairman
Mr. Oscar Lee, representing C.K. Millen

Members absent:

C.W. Piltingsrud,
Rockwell Internation
Dr. Wayne Wenzel, Presbyterian
Medical Center
G.H. McCormick (resigned)

Guests

Dr. William Hendee, U.C.M.C.
Ms. Victoria Fallie, KWGN-TV



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 2 1977

Ref: SA/PHL

Mr. Albert J. Hazle, Director
Occupational and Radiological
Health Division
Colorado Department of Health
4210 East 11th Avenue
Denver, Colorado 80220

Dear Al:

This will confirm the comments Paul Lohaus and John Kendig discussed with you following our recent review and evaluation of the Colorado radiation control program.

Our field evaluation of a State inspector showed the inspector to be professional and competent to evaluate health and safety problems and to apply State regulatory requirements. The review of selected inspection reports showed the reports document the scope of the inspection, status of the licensee's program, and substantiation of non-compliance and health and safety matters. The review of selected license files showed licensing actions to be supported with appropriate backup information. Several of the licenses reviewed contained old, or in some cases, improper licensing conditions. A review of your standard licensing conditions showed they were last revised in 1972 although recent changes had been appended or inked in. We recommend that an updated set of standard licensing conditions be prepared. To assist you I have enclosed a current copy of our standard licensing conditions.

Under separate cover, I am sending you copies of the file folders used in our licensing and compliance programs. Our filing system was discussed during the meeting and we promised to send you an example of the type of file folders we use. I am also enclosing a copy of our letter to Dr. Robbins and additional copies of each letter for placement in the public review file.

Mr. Albert J. Hazle

- 2 -

I appreciate the cooperation and assistance extended to our representatives during their meeting with you and your staff.

Sincerely,


G. Wayne Kerr, Assistant Director
for State Agreements Program
Office of State Programs

Enclosures:

1. Letter to Dr. Robbins
2. NRC Standard Licensing Conditions

cc: Dr. Anthony Robbins w/o encl.
NRC Public Document Room)
Colorado Public Document Room) w/enclosures



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 11 1977

Ref: SA/PHL

Anthony Robbins, M.D.
Executive Director
Colorado Department of Health
4210 East 11th Avenue
Denver, Colorado 80220

Dear Dr. Robbins:

This will confirm the discussion Mr. Lohaus and Mr. Kendig held with you following our review and evaluation of the Colorado radiation control program conducted July 11-15, 1977. The review covered the principal administrative and technical aspects of the program. This included an examination of the program's funding and personnel resources; licensing, inspection and enforcement activities; field evaluation of a State inspector; status of the State's radiation control regulations; and examination of emergency response and laboratory capabilities.

As a result of our on-site review of your program and the routine exchanges of information between the Nuclear Regulatory Commission and the State of Colorado, the staff believes the Colorado program for regulation of agreement material is adequate to protect the public health and safety and compatible with the Commission's program for regulation of similar materials.

We were pleased to find no major problems in any program area which reflects the competence and high quality of your staff. The following comments and recommendations are offered for your consideration. We ask that you review them and give us your comments on the recommendations including any actions you plan to take to carry them out. In addition, I have enclosed a copy of a letter to Mr. Hazle with additional comments concerning the program.

1. Following our review last year we noted that additional staff would be needed to keep pace with program growth, particularly in the area of uranium mill licensing. We again find program activities relating to uranium milling require additional staff. We recommended that additional staff be obtained to work in the area of uranium mill licensing and compliance.

2. The radiation control program has had a set of draft revised regulations under consideration for about a year. We recommend that a target date of January, 1978 be established to have the revised regulations adopted and published.
3. We recommend that at least one laboratory staff member be made available to attend the radiochemistry course to be given later this year. We will reimburse the State for travel and per diem costs associated with attendance at the course. This course was developed at the request of the Agreement States and may not be given again in the near future.
4. We note the laboratory is experiencing difficulty in processing environmental samples and samples collected as part of your regulatory program on a timely basis. This relates to performing wet chemistry separations on some samples prior to radiological analysis. Some laboratory instrumentation is old and replacement parts can no longer be obtained. The lab is crowded with insufficient sample storage space and temperature and line voltage fluctuations affect performance of the instrumentation. We recommend that consideration be given to hiring additional radiochemistry staff for the regulatory program and that plans be developed to begin upgrading old laboratory instrumentation and improving laboratory conditions.

During the summary meeting you inquired about NRC assistance regarding regulation of uranium milling activities in Colorado. I would be happy to discuss this matter with you at your convenience. On the question of having Colorado inspectors join our inspectors at visits to the Fort St. Vrain reactor, we will look into this matter immediately and advise you by September 1.

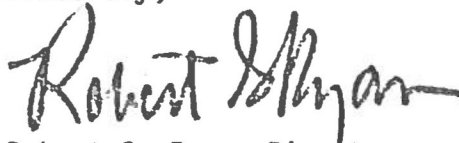
As discussed, the radiation control program will establish a file to contain copies of our letters sent to the State following our reviews. We understand this file will be made available to members of the public on request.

Dr. Anthony Robbins

- 3 -

I appreciate the cooperation and assistance extended by you and your staff to our representatives during this review. Our staff is available to assist you in reaching the goal we share of assuring the protection of the public health and safety in the administration of this program.

Sincerely,

A handwritten signature in dark ink, appearing to read "Robert G. Ryan". The signature is fluid and cursive, with a long horizontal stroke at the end.

Robert G. Ryan, Director
Office of State Programs

Enclosure:
Letter to Mr. Hazle

cc: Mr. A. Hazle
NRC Public Document Room
Colorado Public Document Room

RADIATION ADVISORY COMMITTEE
"AD HOC" MEETING
AUGUST 29, 1977

LOCATION: Mercy Medical Center Conference Room

MEMBERS PRESENT: John Lemon, M.D. (Chairman)
Gordon Kenny (representing Wayne Wenzel, M.D.)
Neal Goodman, M.D.
Selma Locke, R.T.

GUEST PRESENT: William Hendee, Ph.D.

COLORADO DEPARTMENT OF HEALTH STAFF PRESENT: Albert Hazle
James Montgomery
Warren Jacobi

PURPOSE OF MEETING: To discuss the adoption of the 1976 revised Part VI
(X-ray) to the Regulations.

Dr. Lemon: Does anybody have questions in the definitions?

Dr. Hendee: Are you going through Part VI page by page, or do you want general philosophical statements?

Dr. Lemon: I would entertain philosophical statements.

Dr. Hendee: I have two things to say. First, I believe these guidelines are more subtle than the original Part F but I think they are directed toward the accomplishment of essentially the same thing which is to take the present compliance standards for x-ray equipment which are applicable to all equipment manufactured after August 1, 1974 and with some deviations or less restraints or a little more tolerance apply to all x-ray equipment.

Statement Number 2: I see nowhere in this document any attention is paid to cost effectiveness of such regulations or to any documentation that they have reduced patient exposure or would reduce patient exposure based on past experience nor any documentation as to the cost of implementing these types of regulations on existing equipment. I think that is an essential aspect of such a major revision of radiation regulations. I think it is irresponsible to propose them or adopt them without that part of the picture being presented. Because, in my opinion, if these regulations were to become applicable today, a large proportion, I don't know what percentage, but a large proportion of present x-ray equipment that was manufactured prior to August 1, 1974, would not meet these standards at any reasonable cost and you would therefore be eliminating these units from the health care system.

Radiation Advisory Committee
"Ad Hoc" Meeting
August 29, 1977

So I am definitely opposed to the adoption of these Regulations. That is my philosophical statement.

Mr. Kenny: I would also like to comment and am representing Dr. Wenzel who could not be here this afternoon. He feels much as you do, Bill. He feels that the scope of these Regulations is so much more detailed, not particularly from a performance standpoint, but what must mechanically and electronically be done. He feels, and so do I, there is no real demonstrated need for this additional type of Regulation. We are both very concerned of the cost impact this will have. It is irresponsible to promote this type of regulation without making a cost/effectiveness judgment particularly in this day and age when we are all trying to work very hard on medical costs. I think an expensive document such as this would be damaging. There are also some parts of it that are totally unrealistic. It promotes elaborate systems to control problems that do not exist. There are suggestions for requirements on machines that are not utilized by manufacturers and are not needed. Some things go far beyond what is reasonable with no demonstrated need. It would be his suggestion (Dr. Wenzel) that we reject it in its entirety.

Dr. Hendee: The other part of my comment that I forgot to make was that if it's up to the person who owns the x-ray equipment to document that his equipment satisfies these requirements, there is no manpower pool that could possibly address that need. You are asking for documentation from people where it is just not available.

Mr. Kenny: In therapy alone I think you would commit maybe 50% additional time in medical physics to do maintenance checks in the therapy rooms. I think where we are now is a very adequate level of support.

Dr. Goodman: I agree.

Ms. Locke: The question is how will it be enforced and how much will it cost us to enforce. Otherwise we could happily live with those regulations. This is a problem we have talked about before-- what we have here. Also, there are some very good points in these regulations. I have seen people violate some of these badly.

Dr. Lemon: I guess everyone has their favorite or unfavorite page in this thing. Mine is page 13 about this x-ray log. I don't think I could live very happily with that. I do think there are some major objections.

Ms. Lock : Excuse me, we have for example, the x-ray department keeping the logs which tells you the procedure and everything else and they also put the technique on the requisition. Is this sufficient, or if it is also kept on the patient's chart, this would be fine.

Dr. Goodman: But who is going to go through and check those anyway.

Radiation Advisory Committee
"Ad Hoc" Meeting
August 29, 1977

Dr. Hendee: Who cares.

Mr. Hazle: You might be surprised who cares.

Ms. Lock : Everyone is responsible for seeing that the regulations are enforced.

Dr. Goodman: Yes, but who wants that regulation?

Ms. Lock : If it's a regulation you shouldn't fight it. You may not like to pay taxes but you still do.

Dr. Lemon discussed some of the policies and rules at Mercy Hospital concerning records and turning in films.

Ms. Lock : Sure, you do it but who else does it?

Ms. Lock indicated that if regulations were in effect it would help prevent poor practices by the radiology profession including technologists.

Mr. Hazle: I hate regulations because it not only takes away our freedom on interpretation but it also takes away the freedom from people we are regulating. There are times when regulations are necessary and I can remember back to the time when we did not have regulations in this state and we used the recommendations of the NCRP as published by the National Bureau of Standards in Handbook 76. We used those, had good cooperation and went by the book.

Back when the Federal Radiation Control came forward and reared its ugly head, the states were unanimously against it. We felt that it was not going to be cost effective. It was going to add tremendous costs to medical care and yet the total reduction of dose to the patients would probably not be reduced much, if any.

Mr. Hazle indicated that a wise person can use a poor machine to get a good x-ray with little dose and one could still take a bad x-ray and give a higher dose with a good machine. He stated that the new machines have keys which permit the user to over-ride the system if it does not meet his needs.

Mr. Hazle: I was on the group that reviewed what the task group on Part F of the Suggested State Regulations. Our job was that of a technical review committee. Our job was not to rewrite Part F, but to put it in the semantics of the rest of the regulation. In so doing we went through the justifications for those particular items. I don't have all of the notes that were taken at that time, but everybody's comments that were submitted under 1974 were considered by the task group and were reviewed by us. There were decisions as to what should be included and what should be amended. There were a number of things that were in the regulations which were complete idiocy and were basic rules of practice that were indirectly related to radiological health. We asked the task group to consider knocking those completely out, which they did.

Radiation Advisory Committee
"Ad Hoc" Meeting
August 29, 1977

Mr. Hazle (continued): The parts on therapy---they actually had a group including industry, some of the physicists involved with this high energy therapy, some regulating groups, not only from BRH but the states who were involved and very interested. They got together and hashed out what they thought was a very reasonable approach to the regulation of those kinds of machines. There were very definite concerns by the people who regulate accelerators that we are taking out teletherapy machines right and left and jamming in accelerators possibly where they shouldn't be put; not from the treatment practice but from the installation and the people who have to run them.

I will not be the first or the last to say that 1976 is not the ideal regulation because there is no regulation written today that is ideal in my mind and a lot of other people's mind. Our regulations are written so as to allow administrative decision and interpretation and the enforcement of such matters. We were one of the prime leaders in drawing to the Bureau of Radiological Health's attention that we have many machines out in Colorado and our interlands in particular where it would do no one any good to require updating of those machines under the Federal X-Ray Performance Standard requirements. They are used for extremities only; if you use your head you can use them very safely. BRH is not interested, at this time, in requiring that all those old machines be brought up-to-date carte-blanc. It would chop their program in a political sense. However, be aware of this: although there is no official statement out I will give you some background on the Medical Devices Act. Under that, all equipment used in medical practice is under the jurisdiction of FDA. This includes x-ray machines. A number of states including Alabama and California said "hey, you just wiped out our x-ray control program" because it didn't give any credence to the state program.

The question was raised to headquarters by these states as to what do we do? There was an allowance for state programs provided they met some minimal requirements. Essentially, Alabama and California were quietly told, "do not push the x-ray thing because if you continue to push it we will have to say yes it includes all of the x-ray machine programs in the states and we will have to go into the process of negotiation to somehow getting you back into your program because at this particular point in time we are not interested in taking over state programs."

However, I do foresee in the not too distant future that there will be so called agreement states with the Bureau of Radiological Health

Some of these things I know you have comments on enforceability. We've got things in our current regulations on gonadal shielding which are difficult to enforce because we were sometimes making a decision whether using that gonadal shield would detract from the particular procedure. We have cited several doctors for not using gonadal shields when the stated purpose of the x-ray was for an area which would not be involved with the use of gonadal shields. They were cited and they agreed. So they can be enforced. We don't irresponsibly enforce and never have.

Radiation Advisory Committee
"Ad Hoc" Meeting
August 29, 1977

Mr. Hazle (continued): I think in the long run, I know with Handbook 76, when we were using that, it was to the doctor's advantage to go along with our recommendations. It was protection for him to be able to say "yes, I am working in accordance with manuals of good practice".

Dr. Goodman: Tell me this, what's wrong with the current regulations we have?

Mr. Hazle: The current regulations do not cover the x-ray performance standard.

Mr. Hazle indicated that a short paragraph was originally added to the regulations referencing the Federal Performance Standards. He said complaints were made that x-ray users couldn't see the Federal regulations in the State regulations.

The users said if you wish to adopt something put it as a complete package in the regulations or leave it out altogether.

Dr. Hendee: Part of what you said, Al, was that there is some flexibility in enforcement of regulations. In otherwords, you can adopt regulations such as the proposed Part F, and then given a certain set of contingencies and given setting, you can decide not to enforce those regulations.

Mr. Hazle: We have done that in the case of the eyes right now.

Dr. Hendee: I appreciate that, but you know it's the same argument that the Nuclear Regulatory Commission is using in saying that every physician who is eligible for licensure must have 200 hours of documented training in radiation protection and basic radioisotope procedures. I can't comprehend 200 hours of formal training on those topics. They say you have to recognize that we have some flexibility in how you interpret that and if you come up with a reasonable program we'll accept it. All of a sudden the burden has changed. Now the burden is upon you to ask for an exception to the rule or regulation rather than the other way around which is for the regulating agency to prove that something is wrong. I can't accept your philosophy that we will be a little bit lax on the enforcement if you will just adopt these regulations. I think that is putting us in a position of which we really never know one day to the next just what we are going to be responsible for.

Dr. Goodman: You might not be here 5 years from now.

Mr. Hazle: I recognize that but on the other hand the regulations are so written that even if we went with the 1970 edition, the regulations do allow for being more stringent.

Dr. Hendee: I think the point of this is that if we go through this, I think we can point out page after page in which things are absolutely impractical.

Mr. Hazle: Maryland took these regulations, after a meeting with their medical people, actually made things more restrictive and put in more things rather than delete.

Radiation Advisory Committee
"Ad Hoc" Meeting
August 29, 1977

Dr. Goodman: There could be reasons why that was done. You can get a group of radiologists who want to get together and make it so tough that the only economically feasible x-rays could be done in a radiologist's office. Now we would all like that because those installations can afford to hire the people to do what's necessary with machines and everything else. I'm sure it's not a problem for a hospital to live with these regulations. We can always hire the extra people to do it. But what does the fellow do that has the one machine who's doing a few extremities and you are not going to be here 5 years from now. That guy (the new director) may go out and say "you can't use that machine". It's a bunch of nonsense because you know he can use that machine. I'm trying to say what's reasonable.

Dr. Lemon: The federal regulations have the input of law. Is it now our duty to hash this thing out and voice our objections?

Dr. Hendee: It's a voluntary group. The National Conference of Radiation Control Program Directors has no federal power at all.

Mr. Hazle: There is now Federal Sanction. Our State law says we shall adopt the Council of State Governments regulations. It also says 1964.

Mr. Hazle reviewed his discussions with the Attorney General's Office regarding which addition of the regulations to use. He indicated that the 1976 edition was ruled to be proper since it was closely aligned with NRC regulations. Concern was expressed by Mr. Hazle that the 1974 edition should be used because it was officially published - 1976 was not.

Mr. Hazle: We all have our individual nitty gritty problems with words that are in regulations. We had that with the 1970 edition. There are some things in regulations that we simply do not agree with. Nevertheless, we do recommend adoption so that we are consistent because we get involved with interstate commerce.

Dr. Hendee: I can't buy those arguments, Al. I think the fact that Colorado stood up two years ago was the major reason that Part F got turned down and withdrawn from national distribution. The reason why the Bureau actually stepped in and withdrew that document was because of the action of a number of the people sitting right at this table. I think it is time for these people to say we are not going to do it again. I don't care whether it's inconsistent, gets in the way of interstate commerce or makes us different from other people, I think what's right is right, and what's right in this case is not adoption of these rules. From any way you want to consider it--economics, lack of manpower, reasonableness.

Mr. Hazle: There are some things that we would strike such as review and approval of plans. We will review plans and comment on such plans but it is the end result of those plans and construction that we judge on.

Radiation Advisory Committee
"Ad Hoc" Meeting
August 29, 1977

Dr. Lemon: Lee Grossman made a rather eloquent, factual and hard hitting report a couple of meetings ago that indicated you all were really hurting - is that not true? What's going to happen when you try to enforce these - obviously it is going to take a lot more manpower.

Dr. Goodman indicated he was in favor of an educational requirement and asked about the status of the x-ray user training proposal and continuing education proposal.

Mr. Montgomery and Mr. Jacobi explained the current proposal. Mr. Jacobi indicated that 24 months of formal training would be required of major users. Minor users would be required to outline their own training program and show the details of their training methods.

Mr. Jacobi indicated that the Bureau of Radiological Health might be interested in funding this proposal.

Mr. Hazle stated that the intent of the training regulation was to eliminate time consuming processing of applications, certificates and exams. The plan was to enforce the regulation during the routine x-ray inspections currently being performed.

Ms. Lock expressed concern for verifying that a "limited user" was taking only the "limited" x-rays and not enlarging the scope of their program. She felt that the intervals between inspections might permit a registrant to violate the requirements.

Mr. Kenny: I would like to approach this from a little bit different point of view. It seems to me that the total purpose of a document like this is to protect people against unnecessary radiation. We are talking about three groups: radiation workers, non-radiation workers, and patients. You are proposing here a basically much more intensive general increase in regulation. Do you people, as the State Board of Health, have any evidence to indicate that the typical or average exposure to a radiation worker is excessive, the typical or average exposure to a non-radiation worker is excessive, or that the typical radiation exposure to the patient is excessive? Excessive in terms of not what a person might feel is proper but in terms of what the legal limits are for radiation exposure to personnel. Do we have a lot of radiation workers in Colorado and in x-ray departments that are being exposed to more than 5 rem per year?

Mr. Hazle: I can assure you that we do not from our review of records. There have been reports that show that there is a definite increase in the dose delivered to patients. This increase can probably be attributed to defensive medicine practice.

Dr. Goodman: The dose per exam is probably going down daily.

Dr. Lemon: I'm saying that there is kind of a moral thing incumbent on us to police our plants and the kind of equipment we have.

Radiation Advisory Committee
"Ad Hoc" Meeting
August 29, 1977

Mr. Hazle: There are some things that will definitely assist us. While we might not like the wording per se, the screening companies that come into the state occasionally, this regulation does address those.

Dr. Hendee: I would have no opposition to that if you wanted to incorporate that into these rules.

Mr. Hazle: The people who were on the technical review committee did not have any excessive knowledge in the area of accelerators. However, the task group did; it did have industry and medical physicists. We set about revising this to put it first of all into regulatory language.

Mr. Kenny: The statement about using an adjustable beam shaping device on a radiotherapy machine says that the device must attenuate the primary beam to 2%. The standard that has been used in therapy for many years is 5% transmission which is acceptable for an adjustable beam block. The difference between 5% and 2% is more than a half value layer. It just doesn't seem like this group putting forth this document has any reason to say that the standard we have been using for years for beam shaping blocks is to be thrown away and all the beam shaping blocks you have now are to be replaced by thicker ones because they have decided the 5% transmission is too much and now it's 2%. The facts of the matter are that the lateral scatter involved is typically 8% maybe 10% sometimes and it really doesn't matter whether it's (beam blocks) 5%, 4% or 3%. There is a section here about beam symmetry monitors. Beam symmetry monitors on high energy x-ray machines--it is just not a problem. For electron beams it's one thing but for most high energy x-ray machines it's not a problem. It makes the statement that new machines would require four quadrant beam symmetry. Varian which is probably the world's most expert in manufacturing linear accelerators installed a new accelerator in Greeley this month. It doesn't have any four quadrant x-ray dosimetry system. Our hospital would have to spend \$50,000 to comply with that and it's a problem that just doesn't exist. For the state to ask our hospital for \$50,000 to fix a problem that doesn't exist is foolish.

✓ It seems that no matter which page you look on, the regulations go far beyond any degree of reasonableness.

Mr. Hazle: Let me address what you are talking about. In our review with that particular group, the F.9 group, they gave us the impression that this was in accord with the industry and that was what was available.

Mr. Kenny: You cannot go out on the market and buy a four quadrant beam monitor off of the shelf.

Mr. Hazle: What we need to do in that case, Gordon, is to put you in contact with the fellow at BRH that was really the most technically knowledgeable of that group which was present during our discussions as a technical review group.

Radiation Advisory Committee
"Ad Hoc" Meeting
August 29, 1977

Dr. Hendee: The trouble with this, Gordon, is that you try to state the principles and then say well give us evidence. We give you a specific example and then we say you need to talk to so-and-so; that's not the problem. If you implement these regulations, you will achieve what the HSA in this state was not able to do--that is automatic elimination of all cobalt teletherapy units that day. Because you've got all therapy systems that must be provided with two radiation monitors.

Mr. Hazle: This is only x-ray; F is only x-ray.

Dr. Hendee: All right then, I'll take that comment back. I thought that was all therapy.

Mr. Hazle: G comes into teletherapy.

Dr. Lemon: Neal and Selma, as a non-physicist physician and technician, do you have any big gaps here that you cannot live with?

Dr. Goodman: What is missing in here (current regulations) that we need have come from here (proposed Part F)? What else do we need that you would like to see that you think would give you a better handle?

Mr. Hazle: I brought this up to the Attorney General's Office so we could adopt essentially by reference and incorporate other regulations into ours to cover the manufacturing and maintenance of x-ray performance standard machines.

Mr. Hazle explained the pros and cons with using the different editions of the suggested state regulations.

Mr. Hazle: The other thing I would be concerned about is your position, Dr. Wenzel's position and Dr. Goodman's position. If there are some manuals of good practice in here and because you may not like for personal feelings, you may come out not looking so good overall--I don't know. That's for you to worry about.

Changes for 1970 to 1974, which was the next edition, had a rationale. All the comments that were submitted were addressed, analysed and acted upon. I wrote a letter to Dale McHard who was the current chairman asking why those comment replies have not been sent back to the people who originated them.

Mr. Montgomery discussed the general debate that appears to be continuing on Part F and emphasized the need for inspectors to be enforcing regulations that are necessary and effective.

Dr. Goodman expressed the concern that Mr. Hazle and Mr. Montgomery would not always be in the Department and that new employees may interpret the regulations differently.

Mr. Kenny: Jim mentioned something I would like to elaborate on. Whenever a regulatory agency wants to increase its degree of regulation over you, it has an obligation to show you why that is needed. I would think that justification for a document like this would be four times as thick. I think there should be nothing added to a regulation unless there is a problem.

Dr. Hendee: So the justification is the burden of the person proposing the regulation not the burden of us to show why it's not needed.

Mr. Kenny: If you want to control our facilities to a much greater extent than you are now, then I think you have an obligation to show us why this is inadequate, why we are overexposing our people, why we are overexposing our patients, and why we are over treating the skin of our patients because you now have a specification on what a skin dose must be on a therapy machine. I think you have an obligation on every page here to tell us why this needs to be more regulated than what it was in the past.

Mr. Hazle: There is a rationale. The rationale is general because these are suggested state regulations.

Mr. Kenny: But the specifications are very specific.

Mr. Hazle: The rationale doesn't go into why Colorado needs this specific requirements.

Mr. Montgomery: I know as a past inspector who has done many inspections on x-ray and licenses, and I know our other inspectors feel the same way, we are constantly being questioned about the regulations we are enforcing now. Questions are being asked, why is this a problem, and why is this being required. As an inspector this was a challenge I always welcomed because if I couldn't justify the regulation in my own mind and explain that to the individual I was inspecting as to why that was necessary and the problems I have seen in my profession because those things were violated, I just couldn't live with it and would get extremely upset over that regulation and having to enforce it. It really bothered me.

Mr. Hazle: Back in 1968 when we became an Agreement State I had 1966-1967 to write our own regulations. NRC came out and said "go with the suggested state regulations". I said I have trouble because I don't understand the suggested state regulations. They came out and spent the better part of two weeks going through the regulations. That was fine. We could really understand the radioactive material areas. We still come to problems. If it's wrong for a particular situation that comes up, someone has to petition for a rule change. Nobody in our group has had the time since then to truly sit down and go through every phrase. I went through it back there. We went through Part F in a week. We didn't go through all the justification because most of that has been done by the task group.

I think to really resolve this for today we have to impress upon the Attorney General's Office that the 1974 edition is the edition to use seeing that is the published edition. Regarding Part III of our regulations, which is a topic we will be discussing later at the next meeting of the full committee, that's 1976 because it's an update to see that the NRC regulations are current.

Radiation Advisory Committee
"Ad Hoc" Meeting
August 29, 1977

Mr. Hazle (continued): Bill, you brought up this updating of past equipment. The Bureau of Radiological Health unofficially informed me that they were taking that under advisement. They may be dropping that from their requirements.

Dr. Hendee: The act that is to take place in 1979 where all equipment becomes applicable? That would be very nice. You see what's come to light is that the original justification for PL-9602 which led to the compliance standard was incorrect.

James L. Montgomery



COLORADO DEPARTMENT OF HEALTH

4210 EAST 11TH AVENUE • DENVER, COLORADO 80220 • PHONE 388-6111

Anthony Robbins, M.D., M.P.A. Executive Director

RADIATION ADVISORY COMMITTEE MEETING

Date: September 12, 1977
Time: 12:00 Noon
Location: Colorado Department of Health
4210 East 11 Avenue
Room 250
Denver, CO 80220

Members Present

J. Ward, Vice Chairman
S. Locke
C. Piltingsrud
J. Lemon, M.D.

Members Absent

R. Beverly
N. Goodman, M.D.
W. Wenzel, M.D.
C. Millen

Others Present

V. Lillie, KWGN reporter

Department Staff

J. Montgomery
W. Jacobi

This was a special meeting to decide on the final approval of the proposed new Regulations.

Mr. Montgomery asked Ms. Locke to report on the decision of the ad hoc committee on Part F of the suggested State Regulations for the Control of Radiation.

Ms. Locke stated that while she favored the new regulations, the committee had voted 2 to 1 against adopting them, and recommended that the 1970 edition of Part VI be used instead.

She asked to go on record as being opposed to this decision.

RADIATION ADVISORY COMMITTEE MEETING

Page 2

Dr. Ward asked if there was anything in the rest of the regulations which should prevent their approval.

Ms. Locke moved that the regulations be approved. Dr. Lemon seconded the motion. The motion was unanimously approved by a vote of 3 to 0 (Vice Chairman doesn't vote unless necessary to break tie).

Dr. Ward suggested that Governor Lamm be contacted and asked to fill the vacancy on the Advisory Committee. Ms. Locke said she would do that.

The meeting was then adjourned.

WEJ:pj


Signature

A G E N D A

RADIATION ADVISORY COMMITTEE MEETING

Colorado Department of Health

1101 Bellaire

Air Pollution Control Conference Room 106

November 10, 1977

2:00 P.M.

- I. Update of Radiation Control Regulations.
- II. Uranium Southeast Colorado "Yellow Cake" Spill.
- III. Uranium Processing License Application Update.

Robert G. Beverly, Chairman

Mailed to:
Radiation Advisory Committee
Larry Zimmerman
William Hendee
Charles Gaylord

RADIATION ADVISORY COMMITTEE MEETING

2:00 P.M., November 10, 1977
Room 106
1100 Bellaire
Denver, Colorado 80220

Committee Members Present

R. Beverly, Chairman
O. Lee (for C. Millen)
C. Piltingsrud
S. Lock
J. Lemon, M.D.
J. Ward

Members Absent

W. Wenzel, M.D.
N. Goodman, M.D.

Department Staff

A. Hazle
W. Jacobi
J. Montgomery
C. Mattson

Guests Present

C. Rutledge, Jr.
R. Pomeroy
C. Bolser
E. McGrath
R. Schwendinger
R. Maixnev
D. Cole

Approval of minutes

Chairman Beverly called the meeting to order. The minutes from the regular August 18, 1977 and the special September 12, 1977 meeting were accepted.

Update of Radiation Control Regulations:

Mr. Hazle informed the committee that the proposed regulations had been presented to the Board of Health October 19, 1977.

Parts of the regulations which received comments were (1) RH3.8.7 which

Minutes-Radiation Advisory Committee Meeting

Page 2

prohibits pre-licensing construction of uranium mills; (2) RH 3.9.7 which requires the Federal government to write Environmental Impact Statements (EIS) for uranium mills in Colorado; and (3) requirement for bonding.

Mr. Hazle stated that the 3.8.7 and 3.9.7 items were not reviewed by this committee and that the requirements of NRC to prepare an EIS was inappropriate. The Department is currently working with the Colorado Mining Association to prepare appropriate amendments.

The Colorado Mining Association (CMA) requested additional time to review the regulations. The Board of Health will, therefore, consider the regulations again on December 21, 1977.

Ed McGrath, an attorney for the Cotter Corporation representing CMA, then addressed the committee. He stated some concerns with the proposed regulations as they relate to the licensing of uranium mills.

First, he questioned the legality of a state requiring the U.S. Nuclear Regulatory Commission to write an EIS. When Colorado became an agreement state, it assumed the responsibility of regulating and licensing uranium mills. He felt that the NRC was in such a state of flux that it would be much easier to work just with the State of Colorado. The association does not want the NRC to take over licensing of the mills.

Secondly, tailings stabilization requires (a) bonding to insure the completion of reclamation systems and, then (b) a means to insure perpetual care funding for the tailings. If the tailings are properly stabilized, there should be no need for perpetual care.

Mr. Hazle said the Department has met and would be having additional meetings with the CMA to discuss these problems. Also, the Radiation Advisory Committee should have a meeting before December 21, 1977 to consider these changes.

"Yellow Cake Spill"

Mr. Mattson discussed the uranium spill near Springfield, Colorado. On September 27 a truck hit three horses, it overturned and released the contents from most of the 50 barrels on board. A slide presentation was made.

Mr. Mattson summarized the interaction between the Health Department and Exxon, who owned the uranium; and the actions taken to clean up the spill.

The area was decontaminated by October 9, 1977.

He stated that the spill was contained shortly after the accident, and hence there was no threat to either the public or to the environment. The Division, therefore, requested that Exxon not rush the cleanup, but rather take their time and clean the area as effectively as possible.

This was the first spill of this magnitude. As a result of this accident, the Department recommended to the U.S. Nuclear Regulatory Commission:

- 1) All mill licensees be made aware of their responsibility for immediate response to control and cleanup of their materials in transit.
- 2) All mill licensees submit to the U.S. NRC or appropriate agreement state authority an acceptable emergency response plan for transportation accidents.
- 3) Shipments of uranium and thorium concentrates be made in containers adequate to withstand the hazards of truck and rail transport. It appears that the containers involved in this accident were completely inadequate.
- 4) Provisions be made for prompt reimbursement for extraordinary expenses incurred by state and local agencies who respond and assist at the scene of accidents involving fuel cycle material.

Mr. Mattson then handed out copies of 3 reports on the incident (NRC, CDH, and the Critical Mass group), and commented briefly on the inappropriate portions of each.

Uranium Processing License Application Update

Mr. Montgomery informed the committee that the following companies have applied for uranium processing licenses: Ranchers Exploration Development Corporation (has just been licensed to move the Naturita pile to a heap-leach site); Union Carbide (three projects, Maybell, Rifle, and Uravan); Homestake Mining Company; Wyoming Minerals Company; and Cotter Corporation. Two additional companies said they soon will apply for licensing--the Pioneer Nuclear Corporation and the Cyprus Mining Company.

Mr. Hazle pointed out that the Department is having a problem with Cotter Corporation in that it is apparently contaminating near-by water wells.

Mr. Montgomery stated that the Division cannot adequately handle all of these applications with its current level of personnel and funding. Hopefully, assistance will be forthcoming with the 1978-79 budget.

Other Matters of Importance

First, Mr. Hazle said that the Environmental Protection Agency proposed guidance of Transuranics in the Environment should be released by the end of November. After that, the Board of Health will probably want to consider revising the state's standard.

Secondly, related to this, the Colorado Department of Health has been designated the lead agency in reviewing the draft EIS of Rocky Flats.

Minutes-Radiation Advisory Committee Meeting
Page 4

Thirdly, by the end of November the U.S. Department of Energy will release the Phase II reports of the seven sites on inactive uranium mill tailings piles in Colorado.

Mr. Piltingsrud has submitted his resignation from the Committee due to his impending retirement from Rockwell International. Mr. Piltingsrud was one of the few remaining original members of the Committee.

There being no further business, Chairman Beverly set the special meeting for 2:00 p.m. December 15, 1977 at the Colorado Department of Health to address these proposed regulation matters prior to the Board of Health meeting on the 21st.

