ROCKY FLATS CITIZENS ADVISORY BOARD
MINUTES OF WORK SESSION
March 2, 1995

FACILITATOR: Reed Hodgin, AlphaTRAC

Linda Murakami called the meeting to order at 6 p.m.

BOARD/EX-OFFICIO MEMBERS PRESENT: Alan Aluisi, Lorraine Anderson, Jim Burch, Jan Burda, Chuck Clark, Ralph Coleman, Tom Davidson, Gislinde Engelmann, Tom Gallegos, Kathryn Johnson, Jack Kraushaar, Albert Lambert, Beverly Lyne, Linda Murakami, David Navarro, Gary Thompson / Tom Marshall, Leanne Smith, Steve Tarlton

BOARD/EX-OFFICIO MEMBERS ABSENT: Stuart Asay, Lloyd Casey, Eugene DeMayo, Reginald Thomas / Martin Hestmark

PUBLIC/OBSERVERS PRESENT: Kenneth Werth (citizen); James Voorhies (citizen); Shirley Martinez (citizen); Jeff Finlay (citizen); Catherine Lavender (citizen); Liz Cone (ASG); Chip Lagdon (citizen); Pat Worthington (citizen); Charles Lewis (citizen); Mark Spears (citizen); Jim Hardman (Lyon Assoc.); Drake Fink (citizen); Elizabeth Baracani (Suerdrup Environmental); T.E. DuPont (citizen); W.H. Diment (citizen); Peter Hixson (ICF Kaiser); John J. Walker (citizen); Vera D. Walker (citizen); Joshua Solove (student); Nancy M. Daugherty (Woodward-Clyde); Cheryl Arnold (WSI); Sujit Gupta (CAB E/ WM Committee); Ron McConn (Parsons); J. Gordon Quillin (The Alpha Group); Jim Stone (RFCC); Greg Marsh (RFCC); C. L. Barnett (citizen); O.B. Spence (citizen)

PRESENTATION - RADIATION / HEALTH EFFECTS:

Jim Voorhies (Rad Ops Training/COMP, EG&G; & Front Range Community College), presented information on radiation, radioactivity and contamination.

- Radiation is the process of a random spontaneous release of energy in the form of particles or electromagnetic waves from an unstable atom. Different types of radiation include: (1) Alpha Decay (nucleus with too many neutrons and protons to be stable ejects an alpha particle, which poses an internal hazard); (2) Beta Decay (nucleus with too many neutrons to be stable ejects a beta particle, which poses both an internal and external hazard); (3) Gamma Ray Emission/X-Rays (electromagnetic energy waves, an external hazard which can be shielded by

materials such as lead, concrete or steel); (4) Fission Decay (a large nucleus atom splits into two or more smaller nuclei - a result of either absorption by a fissile material, absorption by fissionable material, or spontaneous fission); and (5) Neutron Radiation (emission of neutrons from the nucleus of an unstable atom, or the fission process; an external hazard which can be shielded by hydrogenous material such as water, plastic and wax).

- Radioactivity is the property possessed by some elements to release energy in the form of particles or electromagnetic waves. Some definitions and measurements of radioactivity include: (1) Activity (the rate at which radioactive material decays); (2) Specific Activity (the amount of radioactive material per unit mass or volume); (3) Half Life (the amount of time it takes for half of the radioactive atoms to decay); and (4) Exposure, Absorbed Dose, and Dose Equivalent (the amount of radiation exposure, measured by Roentgen [R], RAD [Roentgen Absorbed Dose], and REM [Roentgen Equivalent Man], respectively). There are natural radiation sources, such as: external terrestrial (naturally occurring in soils, rocks and minerals); internal radiation (radionuclides in food, water and air); and cosmic radiation (generated in outer space and from the sun). Artificial radiation sources include: nuclear fallout exposure; electronic exposure (from items such as TVs, electron tubes, airport baggage inspection, etc.); consumer products (like luminous watches, smoke detectors, photographic lenses); medical exposures (from x-rays, nuclear medicine, radiation oncology); nuclear reactors; and other miscellaneous exposures.
- Contamination is a radioactive material in an undesirable location. There are varying degrees of damage to cells in the body from exposure to radiation, and some cells are more radiosensitive than others. Effects include: acute, genetic and somatic. There is also a controversial theory that some low doses of radiation are beneficial or necessary.

Niels D. Schonbeck, Ph.D. (Professor, Department of Chemistry, Metro State College), discussed the health effects of radiation. The use and exposure to nuclear materials causes free radicals. Since the human body is made up of more than 70% water, when radiation enters the body, it is highly reactive and damages anything it comes into contact with. Nature is essentially radioactive; however, naturally occurring radiation is not benign. The waste products of nuclear power based on fission are automatically radioactive. Biological material is at a severe disadvantage when put into contact with radiation. Dr. Schonbeck discussed the process of DNA replication in the body, and demonstrated how radiation effects the genetic makeup and causes mutations. Radiation is a primary cancer-causing carcinogen. In theory, long-term chronic exposure to low-level radiation could be carcinogenic. No one is certain how severe the effects of low-level radiation are, but his opinion is that you should err on the side of caution and protection of human life.

UPDATE ON ROCKY FLATS SUMMIT: Doug Brookman and Meg King discussed the upcoming Summit scheduled for March 3-4. Saturday morning there will be a

discussion on what is hoped to be accomplished at Rocky Flats, and attempt to come to agreement on issues. In the afternoon, small groups will be formed and will develop more specific goals and action plans. The format will be interactive.

COMMITTEE REPORTS:

1) Membership Committee
Recommendation: Approve policy regarding minimum level of involvement for Board members. It was suggested to remove the word "biannual" from item no. 3.
Action: Motion to accept as amended. APPROVED.

2) Community Outreach Committee
Recommendation: Remove previously tabled item from discussion (regarding COMRAD support letters).
Action: Motion to accept. APPROVED.

The next newsletter will be developed by the end of May. Please submit any ideas for articles or subjects to Erin within the next week.

3) Environmental/Waste Management Committee
Recommendation: Approve Tom DuPont to serve as committee vice-chair.
Action: Motion to accept. APPROVED.

The committee showed a 15-minute video on closure of the solar ponds. The IM/IRA document is now out for public comment. The committee is involved in the process and had previously made comments, and will submit a recommendation on the appropriateness of the draft proposal for the Board's review at its April meeting. It will also be discussed at the next meeting, March 16. Further comments will be accepted at that meeting.

4) Executive Committee

- Linda distributed a one-page summary of the transition plan for the new contractor.
- Elections for Board officers will be held at the April meeting. If you are interested in running for a certain office, or nominating someone, please contact the office.
- SSAB Evaluation Steering Committee is developing evaluation criteria for the SSABs. Board members will be asked to give their input to the evaluation criteria.
- Beverly, Gary, David, Linda, Gislinde and Lisa attended the SSAB workshop in February and gave an update:

--There are a lot of similarities in the start-up time for SSABs to develop policies and procedures. --The boards are very diverse, yet they have many of the same concerns. It is

important to develop a dialogue between the boards to help each other. --There is some concern that SSABs are a waste of money, and the boards need to come up with some products that are useful, while watching the costs. --There were a lot of commonalities, and many of the boards are striving for consistency in structure and operations. --Being in a forum such as this and listening to the other boards, it helped to see that the CAB is doing a good job. We've gone very far, especially with the development of the work plan. And the staff has been important and integral in getting us as far as we have. --A lot of the boards are going through the same educational process, and have experienced many of the same problems.

5) Site Wide Issues Committee

The committee is continuing to develop its work plan. There are 14 issues to be prioritized at the next meeting on March 6. Many of the issues are waste-related.

6) Plutonium and Special Nuclear Materials Committee

The committee heard a presentation from the Excess Materials Disposition Liability Reduction Team. Also they received on update on DOE's response to DNFSB Recommendation 94-1. They continue to refine issues for the work plan. A special meeting will be held on March 7 to finalize the work products.

7) Alternative Use Planning Committee

The committee received responses to NCPP Stage I comments and questions, which have been distributed this evening to Board members. Also, the committee is in the process of developing its work plan issues.

NEXT MEETING:

Date: April 6, 1995, 6 - 9:30 p.m.
Location: Westminster City Hall, Multi-Purpose Room
Agenda: Work Plan Presentation/Reports from: Plutonium and Special Nuclear Materials Committee; and Site Wide Issues Committee

ACTION ITEM SUMMARY: ASSIGNED TO:

1) Make comments on draft IM/IRA (solar ponds closure) to Environmental/Waste Management Committee (by 3/16/95); or attend committee meeting on 3/16/95 - All Board members
2) Notify staff of intent to run for Board office, or make nominations- All Board members

MEETING ADJOURNED AT 9:25 P.M.

* Taped transcript of full meeting is available in CAB office.

MINUTES APPROVED BY:

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Secretary, Rocky Flats Citizens Advisory Board

QUESTION AND ANSWER / PUBLIC COMMENT PERIOD TO RADIATION / HEALTH PHYSICS PRESENTATION:

Question: Many studies indicate that low-level radiation is not only necessary for life, but also can be beneficial. How can we reconcile all the concerns about radiation with this data?

Answer: NS: I believe hormesis is speculation, and I'm extremely skeptical. I am interested in reviewing the data, but I can't think of a mechanism that makes it work.

Question: Can you comment on the chemical toxicity of radionuclides, aside from the radioactivity?

Answer: **JV**: Uranium is more chemically toxic than radioactively toxic. Americium, a byproduct of plutonium, has the same chemical toxicity of plutonium. We regulate plutonium, yet americium is found in our homes.
NS: When you talk about plutonium, chemical toxicity is not a concern. By the time you get to those levels, the radiation will be overwhelming.

Question: Are there any studies out, or a plan to take into consideration the synergistic accumulative effect of both radionuclide and chemical exposure?

Answer: **JV:** I haven't heard of any studies proposed for the combined effects.
NS: I would guess that someone is looking at this, but it's hard to calculate the synergistic effect.

Question: One thing that goes by the wayside with budget cuts is the practice of ALARA. Are there any studies underway or in the future that will answer the questions about long-term exposure?

Answer: **JV:** ALARA doesn't go to the wayside, it's always present. It is a philosophy that is becoming law. But you have to remember the "reasonable" aspect of this philosophy.
LS: We have standards for worker safety that are below the NRC standards.
--The last DOE funded study was done by Johns-Hopkins of about 100,000 workers during the time period 1968-1980. That study was completed in 1992. DOE is looking at extending that study for another 12 years. The data is available (Beverly requested a copy.) NS: There is another study started about 15 years ago on Rocky Flats workers, which was reported on in 1987. It has been refunded.

Question: Do we know of any other studies going on that are independent of DOE, and what about a peer review?

Answer: JV: You can draw different conclusions from any study.
--In general the studies confirm that the risks of low-level radioactivity are low.

Question: I have a concern that there should be independent studies being done, and that the data is open to the researchers, scientists, etc. and that they be available to be published in professional journals and have peer reviews, without DOE's filter.

Answer: This study has received peer review, has been published in different periodicals. NS: It's important to have technical training and studies done by someone other than the people who brought us nuclear energy. Comment: Most people bring their preconceived ideas about these issues to the education and the studies, and there will be experts on both sides of the issues completely disagreeing with each other. Comment: You can come up with a difference of opinion by looking at the data, and I would ask that the data and records be available so that we can all review it.

Question: Are you trying to tell us that we have no concern for another 50 years out there?

Answer: **JV:** I was brought here to inform people about different types of radiation, and biological effects and potential hazards of radiation. I presented the different types and characteristics of radiation, and attempted to put things into perspective. But we do need to be careful about cleaning up contamination and addressing the radioactive hazard of plutonium.
NS: It would be absurd to say that the Rocky Flats workers have not been exposed and have no risks. To what degree we don't know, because the studies haven't been done. My concern with Rocky Flats is that there is all this plutonium, not in a stable form, located much too close to people.

Question: I would like to know if there are any ongoing environmental studies, specifically to do with use of land, water, air, and if the data is available.

Answer: NS: There is Iggy Litaor's study of plutonium migration near the 903 pad. He's a soil scientist. His tentative conclusion is that plutonium doesn't migrate too much unless it's moved by earthworms or some other biological intervention. There is a lot more to be studied out there. Also, there are off-site studies being done by CSU.

Comment: In addition, DOE conducts environmental monitoring and prepares an annual report. Numerous local governments also conduct monitoring.

Question: Is anyone aware of a non-governmental or non-publicly funded agency that has done environmental studies?

Answer: There is a Citizens Sampling Subcommittee, which is set up to be independent. The idea was for the citizens to select and oversee the sampling of soils. There should be a report out in the next couple of months.

Question: Would the CAB be willing to take responsibility for preparing a bibliography of scientific literature and information to provide to the public to review?

Answer: That's something we've been talking about in one of our committees; the staff has begun to pull together that information.

Question: We live in Westminster and get our water from Standley Lake, and there is plutonium beneath the surface of the bottom of the lake. There are bottom-feeding fish in that lake. They must disturb the mud at the bottom of the lake - what happens as far as the plutonium is concerned, could it possibly get into the water supply?

Answer: On a routine basis, CDPHE monitors the water in Standley Lake, as well as the water that goes into and out of Standley Lake. The cities monitor the water going into the city water supply. Plutonium has a tendency to stay stuck on the soil particles, rather than move into the water, so the material would settle back to the bottom.

Comment: It's generally thought that things are okay as long as there's nothing that disturbs it, and usually people think more of a natural event such as earthquake that would upset the bottom sediments. Your issue about the fish is important, and perhaps CDPHE could get back to you and give you further information.

Comment: You could also get in touch with Ward Whicker at CSU, whose department has done studies of the sediment in Standley Lake.

The Rocky Flats Citizens Advisory Board is a community advisory group that reviews and

provides recommendations on cleanup plans for Rocky Flats, a former nuclear weapons plant outside of Denver, Colorado.

Top of Page | Index of Meeting Minutes | Home

Citizens Advisory Board Info | Rocky Flats Info | Links | Feedback & Questions