

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

FACILITATOR: Reed Hodgins, AlphaTRAC

Kathryn Johnson called the meeting to order at 6 p.m.

BOARD / EX-OFFICIO MEMBERS PRESENT: Alan Aluisi, Tom Clark, Ralph Coleman, Eugene DeMayo, Mike Freeman, Tom Gallegos, Kathryn Johnson, Sasa Jovic, Jack Kraushaar, Beverly Lyne, Tom Marshall, LeRoy Moore, Linda Murakami, David Navarro, Gary Thompson / Tim Rehder, Leanne Smith, Steve Tarlton

BOARD / EX-OFFICIO MEMBERS ABSENT: Jan Burda, Lloyd Casey, Tom Davidson, Mike Keating, Albert Lambert

PUBLIC / OBSERVERS PRESENT: Kenneth Werth (citizen); David Riley (citizen); Heather Hodgins (citizen); Mary Lee Hogg (Kaiser-Hill); L. A. Helmerick (DOE); Kim Seebaum (citizen); Mariane Anderson (DOE); Cliff Villa (EPA); John Rampe (DOE/RFFO); Kay Ryan (SWEIS); Sam Cole (PSR); Judy Bruch (CDPHE); Juliene Pimentel (citizen); Patrick Crutchfield (citizen); Gerd von Glinski (citizen); G. E. Moore (citizen); K. P. Coleman (CSM); Jim Stone (RFCC); Chris Dayton (Kaiser-Hill); Tom DuPont (citizen); Mark Angerhofer (citizen); Allen Schubert (Kaiser-Hill); Niels Schonbeck (MSC/HAP); Melinda Kassen (Kaiser-Hill); Iggy Litaor (CU); Lisa Hanson (CAB staff); Erin Rogers (CAB staff); Ken Korkia (CAB staff); Deb Thompson (CAB staff)

PRESENTATION - FUNDAMENTALS OF RISK ASSESSMENT (Bonnie LaVelle, EPA): Bonnie reviewed the basics of how risk assessment is performed, including how risk is defined numerically. Risk is defined by EPA as the probability of adverse health effects; risk management involves determining whether risk is sufficiently high enough to present a danger and then making appropriate decisions to mitigate. There are many factors to consider when doing risk assessment, including public and business interests, legal and regulatory constraints, economic costs and benefits, as well as ethical/social/political factors. In risk assessment, the steps involved are to collect and evaluate data, then perform toxicity and exposure assessments - which leads to the risk characterization. To ensure the quality of data collection and evaluation, EPA uses standard procedures, approved laboratories and an independent validation process. Exposure assessment is the process of reviewing pathways of contamination, such as the source, mechanism, transport, point of exposure, route of exposure, and receptor. The final step is to calculate the dose in order to arrive at a reasonable maximum exposure (risk characterization). In 1981, the National Research Council asked EPA to: 1) make distinct the difference between assessment and management; 2) develop and use uniform guidelines; and 3) establish a board on risk assessment methods.

Q/A Session:

Question: Has there been much work done in the area of coming up with some synergistic

ADMIN RECORD

risk at Rocky Flats, not only on the radionuclides, but also on all the different chemicals and combinations of those?

Answer: No. The reason is because it is difficult to express synergistic effects mathematically. When we try to make decisions onsite, it's about whether or not this is an acceptable risk. We can get that information from toxicological information, but we have no way of quantifying that.

Question: How do you decide what risk is acceptable? For instance, there is plutonium in the soil surrounding Rocky Flats and then you later decide to make that open space, you go through all your calculations and decide that in the Denver metro area, 10 people will get lung cancer in 25 years. How do you decide does this need to be cleaned up, or do you forget about it?

Answer: Part of it is easy because of regulations, but the other part is interpreting the regulations. EPA has determined for Superfund that a risk in the range of 1-in-10,000 to 1-in-1,000,000 is acceptable. They also say you need to look at the uncertainty surrounding those numbers. The factors that you mention have to be considered when we make decisions in that range - how many chemicals are we talking about, what is the evidence of carcinogens in those chemicals, what's our confidence in our ability to predict exposure? Those things have to be considered in making regulatory decisions.

Question: Land use assumptions are key to determining the reasonable maximum exposure. For what period of time do those land use assumptions extend? We're talking about some long-lived radionuclides at Rocky Flats.

Answer: You should have confidence in those forever. What we're using that for is to make a determination if we should clean up or not. If you leave contamination in the ground, you had better be certain that nobody in the future will be exposed to those levels at a rate that will cause a problem.

Question: One in 10,000 compared to two million people is 200 excess deaths. These are okay, is that what you're saying?

Answer: I'm not saying that. But I would clarify that is cancer incidence. So any incidence of cancer, whether you can recover from that, is not cancer death. But yes, that was the regulatory decision, 200 incidences of cancer in that population was an acceptable risk.

Question: Has EPA published their standards for radionuclides in relation to cleanup? They were going to be published sometime in the last year-and-a-half. Why is it being delayed?

Answer: No, they have not been published. I have no idea why they have been delayed.

Question: The state standard for plutonium in soil, which is 22-1/2 times average background for the Front Range, is going to be eased when EPA publishes their standards, and the state standard will be abolished as I understand it. Is that correct?

Answer: I don't know. I have not heard that. Also, a standard is one part of the Superfund decision process. But you will also see this assessment of risk, which is quite different. So even if you have a standard in place, you ought to have an understanding of what that

contamination means in terms of human health risk, which is a separate thing.

Question: Is it 1-in-10,000 extra rates of cancer, or is it 1-in-10,000 people?

Answer: It's a probability, a 1-in-10,000 chance for someone to get cancer as an individual, above the background cancer rate.

Question: You aren't able to assess the synergistic effects of the different chemicals onsite. Is there ever an attempt to factor in harmful chemicals or compounds that a person may get from both the site and offsite?

Answer: Not in these assessments. What we're using these assessments for is what to do with the contamination related to the activities onsite. The only effect would be if what they are receiving offsite migrated from Rocky Flats, because we're trying to assess the contamination at this site, and we have to limit our decision-making to what's related to the site.

Question: So as the world gets more crowded and we get more toxic waste sites, our risk of having an effect from one of these sites goes up. So if there are 100 sites around Rocky Flats and you live near there, then Rocky Flats adds to that, but there's actually quite a bit more risk than 1-in-10,000.

Answer: If that's within the area that you're exposed to on a normal basis, yes.

Question: So Rocky Flats is considered one site, even though there are multiple contaminant pathways and multiple contaminants?

Answer: Yes, but we are obligated to look at those multiple contaminants and pathways, but only related to Rocky Flats operations.

Question: It seems that it would make more sense to look at the combination of all the exposures that any person would have at that site, how Rocky Flats adds to that.

Answer: That comes into the decision-making within that range. You may make a different decision if this site is the only contaminated area within a 50-mile radius. Those are the ethical and social considerations you need to look at when making these decisions. EPA has given us a range, but it's up to us to decide what's important to look at to make that decision.

PRESENTATION - 1995 SPRING RAIN EFFECTS ON PLUTONIUM MIGRATION

(Iggy Litaor, Associate Professor Adjunct at CU): Professor Litaor discussed the effects of heavy spring rains, and subsequent flooding on May 17, 1995. He believes soil contamination has migrated into the buffer zone; plutonium becomes mobile on the top of the soil when the soil becomes saturated. Several different readings taken in selected sections east and south of the 903 pad indicate there are hot spots, but locating exact hot spots may be impossible because of the nature of the contamination (micro particles). Personally, he does not believe the contamination should be removed as that may cause more problems; he would like to see a task force initiated to discuss the issue.

Q/A Session:

Question: At the last CAB meeting, a question was asked about Iggy Litaor's work, and you stated that his funding had been restored. But tonight he stated he's no longer working at Rocky Flats. What's the truth?

Answer: Chris Dayton: Iggy Litaor is being funded through environmental restoration, which is a program set up by Kaiser-Hill with the University Consortium, and he has received funding through that program. I slightly mis-spoke last month, because the contract on our side was taken care of. I did not know that Iggy had problems on his side with his contract with CU. He is a subcontractor until October of 1996.

Question: I don't understand this. You seem to be saying he's still employed, and Iggy says he's not.

Answer: Iggy Litaor: I was employed by EG&G. When Kaiser-Hill came to town, they told me they'd let the university decide, and showed me the door. My team, myself and six graduate students were eliminated. Following that, I felt what I was doing was good, so I fought hard and got a lot of support from many people, including CDPHE, and Bonnie LaVelle of EPA. Somehow convinced one manager at RMRS that he will be well-served if my graduate course would be improved and he would give me one year to finish my studies. Since then a lot of water went under the bridge, and some serious problems arose. In the original contract, I wanted to go to the field and finish some unfinished business. It was understood I would go to the field in July and August. Not only the contract was signed finally by CU, and it's not fair to put all the blame on CU - it's all contractual business, I couldn't go to the field. They hired one person who was supposed to let me into the field; that person because of Rocky Flats internal business is still unqualified to go to the field. He was qualified before but in July became unqualified. Today he is still unqualified - there is a health and safety issue. We have not pursued some simulations and measurements. When the manager saw my budget, he said this is a drop in the bucket - but it has been slashed by one-third. I had again to drop one of my graduate students. They put me in a quite difficult position. They don't fully support me or my graduate students, but still expect a certain project by the end of this year. I do understand that they have a lot of difficulties. I'm not attacking Kaiser-Hill, I'm telling you exactly the chain of events. What priorities were set and my budget was slashed - that's up to Kaiser-Hill to answer. To say I'm fully operational and doing research is not true. All I'm doing is Microsoft Word.

Comment: May I comment on this? This is a very troubling situation. There have been very few independent scientists at Rocky Flats that could begin to gain the respect of the general public. When I first went to hear Iggy Litaor, I was hearing things that I didn't want to hear, but I found because of his thoroughness and because of the way his work was being peer monitored, that I really had to pay attention to it. He challenged my previous understandings. But there are numerous scientists that have worked with Rocky Flats that do not have the kind of respect that Iggy Litaor's work has begun to get in a very brief time. It is very disturbing for Kaiser-Hill, a brand-new contractor on the scene, to take a step like this that is so destructive of public trust, because public trust is essential if we're going to move ahead with Rocky Flats. I understand Kaiser-Hill is in a hurry and you want to move ahead. But if you want to do it, you're going to have to do it with the public. It's very important that you not destroy public trust.

Response: In that report, Kaiser-Hill said my work will be reviewed by CSM and Los Alamos. Last week, I hear that review took place. I was never asked to provide dossier or any help. When I called the guy who was in charge of this, I asked what did you give to

CSM and LANL. His response is this is the job that landed on my lap, I didn't want to do it and didn't have time, I went to where someone told me your things were, I picked them up and sent it to review. He sent one reprint, three memos and one map. No wonder when I got the review, this review was less than good. I finished a long letter to the managers including documents like the OU2 and OU3 reports, 1,500 pages altogether. I have 10 publications of my team - the reviewers got one. When you committed for the review, it was not done satisfactorily.

Question: It looks like plutonium becomes mobile on the surface of the soil given enough soil saturation, and there are probably numerous hot spots in these areas that have been mapped out and estimates of contamination have been put on this map. You don't recommend cleaning it up, even though it looked like the levels were very high in some areas. Can you elaborate?

Answer: Hot spots were not mapped. Two were found during some work. I found a lot of information from previous workers that reported what now are considered hot spots in this area - it's more information than just my work. However, because of the nature and character of those hot spots, to actually map them like you have termed is impossible. RMRS believes they can locate most of these hot spots and remove them. I personally don't share that belief. I think that locating those hot spots is impossible. You're left with the situation - should you dig out the entire hill, which I think is insane. We have other ways of doing it. I suggest that a task force to look into it.

Question: Why can't you find the hot spots?

Answer: Because of their nature - they are microparticles. It's not like a solvent, when they disperse in the environment you can find them better. The exact mechanism of transport is unknown, surface flow is one thing. Plutonium has actually been remobilized from the bottom into the surface. We have some measurements. That's unrelated to the hot spots, but hot spots move most likely by surface flow. How far is probably very short distances, and then they settle again. One thing you have to realize, what happened on May 17 is not that unique. It doesn't happen every spring, but there are four parameters that control flow and any four of those parameters may generate runoff. We may see something like that anywhere between every 10 to every 100 years. But it does happen. The work by Scott Webb suggests that it happens more often than we would like to believe. Other wise how do you explain this data?

Question: Same as with actinide solutions, you can't get an accurate analysis - it's not so much solubilization as it is transport of particles?

Answer: Discrete particles, that's what I believe.

Question: In one case it sounds like there are hot particles that absorb, and other cases it sounds like we're talking about solubilized material?

Answer: Nothing about the very small micron is solid. That very small particle can be occluded. The relationships are surface-to-surface.

Question: When you talked about cleaning up the area of hot spots, you said you didn't think it would be a good idea because meant digging up the entire hill or whatever. But you

said you had some ideas, do you want to share that now and if not where can we get that information and what other information do you have published now.

Answer: The only thing I'm willing to share right now, I would prefer to see a task force discussing this issue and helping to get the best solution. At this juncture it would be highly premature and unfair to RMRS who is trying to put something together.

PUBLIC COMMENT PERIOD:

Question: Kenneth Werth: Has the plutonium that has been leaching into the ground ever been tested to see how deep it has gone?

Answer: Iggy Litaor: When you look at normal conditions, the recharge in this soil is almost zero. Plutonium does not move in any appreciable amount to the subsurface. When we did 1990-1993 range simulations, we found that much less than one percent of the plutonium that is in the soil moved greater than 70 centimeters. We were unhappy with the 1993 range simulations because we had some boundary effects. We borrowed a device from Los Alamos and the result of the range simulations, for a variety of reasons, have not been written yet. Right now, I don't have the finding to do that. But I can tell you higher levels of plutonium has been moved under those simulations because the way the simulation was set up. In 1995 we were able to do one range simulation before the project was terminated.

Question: Niels Schonbeck: I personally have heard Dr. Litaor give presentations over the years. We on the Health Advisory Panel are interested in the results because they will feed into our calculations. I'm concerned that the answer that is really closed here - will Iggy Litaor's work be continued - has not been answered directly. Are people present here from Kaiser-Hill or DOE willing to make an answer now about the future of his work? My understanding is that his funding level is really only enough to finish the data that he collected. I'm interested to see what else can be studied at Rocky Flats. It seems that he's the obvious person, but if you have other suggestions for research teams, I'd like to hear it. If you're not prepared to answer this today, I would like an answer sometime. I wrote a letter about a month ago addressing this issue and I haven't had a response.

Answer: Nancy Tuor: The answer is we don't know yet. We have just absorbed about a 35 percent reduction in budget in the last four months, and at the same time we are trying to accomplish a greater amount of special nuclear material consolidation and stabilization. Studies will be done through RMRS, but what the future is I don't know. I will check into this, as well as the status of a response to your letter. But the budget situation continues to be difficult.

Question: Jim Stone: I'm concerned, do we have any information on the impact of this situation?

Answer: Steve Tarlton: A specific area we're looking at drains to the southern interceptor ditch, that ditch drains into pond C-2. Water from Pond C-2 following this series of events was discharged to the ditch that goes around Great Western Reservoir. The levels in the discharge were above the state water quality standards but were below a risk level for downstream users. Cities were advised when the discharge occurred. Samples were taken and it was watched to make sure what the levels were when it was discharged from Pond C-2. In the context of surface water, they were elevated levels. They were not levels that

presented a risk for the Superfund type of calculation.

Question: Beverly Lyne: I'd like to ask that when Nancy Tuor gives an answer to Niels Schonbeck's question, that we at the Board could hear that as well, by our next meeting. I would like to hear that discussed.

Comment: Niels Schonbeck: What I'm interested in is not just the issue of money, I would also like to know what the priority is from Kaiser-Hill with regard to the study of plutonium on the site. This is a unique site, it's a unique opportunity, we have a man who's been doing this for five years. There are other places in the nation and internationally that could profit by understanding plutonium migration. This is an opportunity that should not go away because of money. It's a matter of priority.

Comment: Iggy Litaor: Today I read that Kaiser-Hill has a plan to cover the whole thing with an engineered barrier. It says in the paper if you do that, you need a monitoring system to determine the integrity of this barrier. My team was the best team in the country in monitoring vadose-zone flow. The team has been eliminated. When it comes to monitoring the vadose-zone flow, the existing system can easily be transformed.

Comment: Eugene DeMayo: I guess as a fairly cynical member of the public, I wonder whether Kaiser-Hill really wants to find anything at Rocky Flats moving around.

Question: Kenneth Werth: Have other areas in your study been funded, and are you going to look at the whole site?

Answer: Iggy Litaor: No, that's not the mandate I got from Kaiser-Hill. I made a request of funds, Kaiser-Hill slashed it by one-third, which gives me significantly less than a year to do this work and it's focused only in one area. The whole issue of studying the watershed, we were told that we would be part of it but we're not. RMRS is the one that will do it.

Response: Melinda Kassen: As some of you may know, Congress passed a bill which will cut DOE's environmental management funding by between \$400 and \$500 million from what the agency requested. That's for FY96. The site will be going through a process of prioritizing in the next couple of months. There's a new plutonium structure, compliance with environmental laws, doing research on stabilizing mixed waste, other kinds of research on the Prebles Jumping Mouse, etc. What would be helpful from CAB is input as to if you've got a budget cut by 40%, what is it the citizens think we should or should not be doing? Those are real issues at this site, and the time is now to try to deal with some of those issues. You need to put things into context of how DOE is going to deal with massive funding cuts.

Response: Tom Marshall: I don't think we should be rolling over on budget cuts. It's a reality at the moment. But I think the elected leaders of this state need to redouble their efforts to get money to fund what is needed at Rocky Flats. It seems that Mr. Litaor's work was halted before the Energy and Water Appropriation Bill went through. So we're talking a matter of priority. What I've been hearing is a concern about Kaiser-Hill's priorities and whether they are willing to put the money into the research that's needed to determine what is going on out there. It has nothing to do with the money that was just appropriated. I would suggest this Board take this up and perhaps come back with a recommendation on this at the next meeting.

Comment: Sasa Jovic: I'm just starting to work on my Ph.D. and made a rough estimate of how much money I'm going to need annually. I could probably make that much money driving for Domino's on Friday and Saturday night. We're not talking a lot of money. We went to tour at Rocky Flats, and there are 300 people there leaning against the wall. That was incredible. You can't find the money for his project, yet you have this going on? That's embarrassing.

Comment: David Navarro: At the risk of tainting Eugene's reputation, I just wanted to state that I agree with him.

RECOMMENDATION - PLUTONIUM AND SPECIAL NUCLEAR MATERIAL CONSOLIDATION (LeRoy Moore): The committee presented a draft memo to Thomas Grumbly recommending that DOE consider constructing a new facility or facilities to store plutonium. The structure(s) should be able to be converted to monitored, retrievable storage of radioactive waste after the plutonium is removed.

Recommendation: Approve recommendation on plutonium and special nuclear material consolidation. Minor changes to the text were recommended. The committee will meet in November and hear new information that may require change(s) to this recommendation. Mr. Grumbly will make his final decision on December 11, so the committee may bring this recommendation to the Board again at its December meeting and ask to revise the recommendation.

Action: Motion to accept as amended. APPROVED BY CONSENSUS.

KAISER-HILL CONTRACT LIABILITY (Nancy Tuor/Melinda Kassen, Kaiser-Hill): At last month's Board meeting, a question was raised about the difference between Kaiser-Hill's liability and liability of previous M&Os. In response to that question: Before the accountability rules, M&Os had virtually unlimited indemnity except for willful acts. After the accountability rules, which were started shortly after the FBI raid became final a couple of years ago, there was indemnification except for costs related to willful misconduct or bad faith of company officers, or for negligence of company officers - but there was a limit. Our contract is substantially different. We're liable also for the failure to exercise prudent business judgment, reasonable management. This goes down through three levels of management - so it goes much deeper into the organization. And there is no cap on our liability. We're liable for the total amount, as well as fines and penalties, judgment and court costs, attorneys fees; and also for costs that don't pass the basic test of prudent business judgment.

EXECUTIVE COMMITTEE / ANNOUNCEMENTS:

- The proposed tour to WIPP is currently on hold, as well as the November 29 briefing meeting. WIPP is looking into whether they can have non-federal non-contract employees on their DC-9. Keep it on your calendars for now, we'll let you know what we find out.
- The national dialogue planned by SSAB chairs on waste management issues will be in Denver on November 28 and 29. Tom Marshall and Linda Murakami will attend, and will seek the input of Board members via fax in the next couple of weeks.
- Budget update: The budget for the Public Accountability program was decreased by 63%. This will have an impact on CAB's budget, although that impact is not yet known.
- The next tour of RFETS will be on Saturday, November 11, starting at 7:30 a.m. If

anyone is interested, please let Erin know by tomorrow.

SITE WIDE ISSUES COMMITTEE (Tom Marshall): The committee recommended a letter be sent to Mark Silverman voicing CAB's concern about both the lack of progress and a good process for the STCG, as well as inadequate stakeholder involvement. The initiative has not been successful to date because of a lack of support. The letter requests that necessary policy makers be provided to assist in guiding and supporting the STCG effort.

Recommendation: Approve letter to be forwarded to Mark Silverman on STCG initiative.

Action: Motion to accept. APPROVED BY CONSENSUS.

SUMMIT UPDATE (Erin Rogers): The Summit is being planned for Saturday, January 20, with a possible Friday night gathering. The registration deadline is January 5, in order to give time to sent out materials and background information, and to get an accurate count of attendance. Everyone that attended last year will be invited. Any suggestions of new individuals who might participate are welcome. The Summit Organizing Committee is in the process of interviewing firms for facilitation. That decision should be made by next week. The theme being discussed will tie into RFCA and ASAP. The next meeting of the Organizing Committee is November 8, 3:30 at the CAB office.

EXECUTIVE SESSION:

- The Board approved Paul Grogger as a new Board member.
- The Board authorized Jan Burda and Linda Murakami to negotiate a proposal from Donald Scrimgeour and allocate up to \$5,000 for them to utilize in securing that proposal, for one month, to return to the Board by next month.

NEXT MEETING:

Date: December 7, 1995, 6 - 9:30 p.m.

Location: Westminster City Hall, Multi-Purpose Room

Agenda: Risk Assessment panel presentation; agency "Vision" for Rocky Flats

ACTION ITEM SUMMARY: ASSIGNED TO:

1) Forward letter on STCG to Mark Silverman - Staff

MEETING ADJOURNED AT 10:00 P.M.

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

MINUTES APPROVED BY:

Secretary, Rocky Flats Citizens Advisory Board

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.

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