

ROCKY FLATS CITIZENS ADVISORY BOARD

MINUTES OF WORK SESSION

November 6, 1997

FACILITATOR: Reed Hodgins, AlphaTRAC

Tom Marshall called the meeting to order at 6:10 p.m.

BOARD / EX-OFFICIO MEMBERS PRESENT: Susan Barron, Tom Clark, Tom Davidson, Eugene DeMayo, Tom Gallegos, Mary Harlow, Victor Holm, Bob Kanick, Jim Kinsinger, Beverly Lyne, Tom Marshall, David Navarro, Linda Sikkema / Jeremy Karpatkin, Joe Legare, Tim Rehder, Steve Tarlton

BOARD / EX-OFFICIO MEMBERS ABSENT: Alan Aluisi, Jan Burda, Paul Grogger, Susan Johnson, Sasa Jovic

PUBLIC / OBSERVERS PRESENT: Tom Stewart (citizen); Will Neff (RFLII); Mariane Anderson (DOE); Kenneth Werth (citizen); Bob Warther (DNFSB); Mike Korenko (SSOC); John Corsi (K-H); Gary Schuetz (DOE); Carl Spreng (CDPHE); John Rampe (RFFO); LeRoy Moore (RMPJC); Ben Evans (Kaiser-Hill); Rick Reynolds (RTG); Carol O'Dowd (Athena's Consulting Network); Bob Tiller (K-H); Alan Trenary (citizen); Ken Korkia (CAB staff); Chris Millsaps (CAB staff); Erin Rogers (CAB staff); Deb Thompson (CAB staff)

PUBLIC COMMENT PERIOD: No comments were received.

PRESENTATION AND DISCUSSION - ACTINIDE MIGRATION STUDIES (Dr. Bruce Honeyman, Colorado School of Mines): Dr. Honeyman gave a presentation on the status of Actinide Migration Studies at Rocky Flats. He is a member of an advisory group established to review problems of plutonium moving in soils and sediments in and around Rocky Flats, and to determine how much migration has occurred and under what conditions. The studies are being done so that there will be an accurate understanding of the environmental behavior of actinides, and so that any decisions made are defensible to regulators and the public, as well as the scientific and engineering community. The advisory group has six members representing the U.S. Geological Survey, Los Alamos National Laboratory, Colorado School of Mines, and Texas A&M University. A seventh individual will provide technical review of the results and reports of the advisory group.

The group was funded last year with a \$60,000 grant from DOE. The group's goals are to understand actinide migration in order to:

1. provide defensible long-term surface water compliance when the site is closed,
2. provide defensible remedial actions (in areas such as the 903 Pad, Solar Ponds, and during building D&D), and
3. establish a relationship between soil action levels and surface water quality.

The scope of the group's FY97 work was to evaluate the "phase speciation" of plutonium in selected media (soil in the 903 Pad 'lip' area, the South Interceptor Ditch, and Pond C-2); to determine mass loadings of plutonium to the ponds; and determine water/particle partitioning coefficients. During the studies, they found that plutonium distribution coefficient-to-particles value is extremely high, thereby decreasing the solubility of plutonium. However, they found the distribution coefficient-to-particles value for uranium is low, making it more soluble. Thus, plutonium predominantly moves through the soil through physical means (i.e. erosion) while uranium tends to move through more chemical processes. The preliminary results of the studies also show the large majority of plutonium is bound in either the organic or residual stages. Conclusions of the group to date are that generally plutonium does not exhibit significant solubility under oxic conditions; that under oxic conditions plutonium transport is primary by physical processes; and the dominance of plutonium in the organic fraction suggests that plutonium has the potential for mobility over a greater range of environmental conditions than anticipated. The group's proposed FY98/99 scope of work includes completing the phase speciation studies, completing the coefficient studies, evaluating the effect of anoxic conditions on plutonium mobility, determining the chemical speciation of plutonium, and constructing a watershed model.

Q&A / Comment Session:

Question: Susan Barron: You were talking about having a defensible study. How were the sites selected? Was it random?

Answer: Bruce Honeyman: This is only a preliminary study with very little funding. We did the work in three months or less. We would like to go to different areas, especially in the Woman Creek drainage. We analyzed six soil samples, three from the South Interceptor ditch and some from Pond C-2. But there were budget constraints. We tried to pick samples that would give us statistical significance and would represent the different environments.

Question: Mary Harlow: Gale Biggs met with us a couple of years ago and talked about fugitive emissions being one of the biggest risks to downwind communities. One of the transport mediums was small particles attaching to pollen. Can you comment on this?

Answer: Bruce Honeyman: No, I'm sorry I can't. That's out of my expertise.

Question: Mary Harlow: If you're talking about small particles being attached to different size particulate matter, how small do you think these particles could be?

Answer: Bruce Honeyman: For example, soil organic matter can be on the order of a nanocurie, a billionth of a meter. It can be extremely small. If you have wind scour, the smaller materials will be picked up first. One of our tasks over the next year is to look at some of the material that has been collected on air filters. It would be interesting to see if plutonium is associated with a particular mineral phase in the filters.

Question: LeRoy Moore: Regarding the five phases of speciation, I don't understand how what you're doing has any reference to reality. I don't understand how it relates to what actually happens to plutonium in the soil at Rocky Flats. You're taking samples from the soil at Rocky Flats to a lab and adding chemicals. I don't understand how the phases you create in the lab would be created in the field if you weren't there.

Answer: Bruce Honeyman: We don't create phases in the lab. The idea is that if you take a soil sample, plutonium or americium or uranium is going to be associated with different solid phases. Plutonium under oxidizing conditions is held relatively tightly to soil materials. So if we wanted to understand the plutonium that's associated with the organic phase, you destroy the organic phase and then the plutonium is released. We add an amendment to the soil that is known to target a certain mineral phase, then destroy it and release it. It's a way of probing the chemical form of plutonium in the soil environments. But as with any sort of diagnostic tool, you're using a probe to try and understand what is going on. Phase speciation is a well-established procedure for trying to understand the association of target elements with different mineral phases. One of the next tasks is to use a different type of analytical procedure to further understand what the chemical form is.

Question: Jim Kinsinger: On the pond work, the implication is that when you looked at what was in the pond, you're assuming there is a uniform influx of plutonium or material into that pond.

Answer: Bruce Honeyman: Yes, for these calculations. We took a core, then sectioned it at centimeter intervals, and then measure the plutonium in there. The deposition of the plutonium in the pond isn't uniform with time. We know the age of the pond and we know the accumulations, so it looks like about a centimeter per year of sediment is collected in the ponds. It's an order of magnitude estimate.

Question: Jim Kinsinger: You had a statement that said the ponds are an efficient trap for plutonium.

Answer: Bruce Honeyman: This is preliminary, but if you look at the balance of the plutonium going into the ponds and then look at the plutonium that is collected downgradient from the ponds, the plutonium that goes into the ponds is much larger than what would escape in streams.

Comment: Bob Kanick: I see this as having been done in two steps. The first step was trying to determine how the plutonium is bound up in the soil, and the second step is to determine how it moves through the soil. The answers from the first steps helps to devise the experiments for the second step.

Question: Kenneth Werth: I've always heard that plutonium and americium seek their own source of migration. I'm not as much interested in what you're finding out now. I would like to find out during your high production years how far do the heavy metals migrate?

Answer: Bruce Honeyman: I can't answer that. We're trying to understand the geochemistry and transport of plutonium and americium currently. Presumably if you have an accurate model, you can work it back in time. Steve Tarlton: One thing we do know is there is plutonium in the sediments of Standley Lake and Great Western Reservoir. We know those reservoirs also serve as a trap. The ponds were put there in part to control some of the runoff from the site. Since that time, they have been effective at keeping additional sediment from leaving the site. But there has been a gradual migration. During the production years, the material that left the site is in the sediment of those lakes. The information does not indicate that it is moving. We may get some information from these studies.

Question: Mary Harlow: Who drew up your sampling plan, who wrote your protocols, and who gathered your samples?

Answer: Bruce Honeyman: Peter Santchi and I did a work scope document with Kaiser-Hill and RMRS. RMRS did the sampling. Peter Santchi and I provided the laboratory workers in the field with instructions on how we wanted it done.

Question: LeRoy Moore: How are you going to discover for us a significant event like what happened in May 1995? What's your procedure for that? Can you tell us if plutonium really moved in a significant way in May 1995?

Answer: Bruce Honeyman: No, not yet. One problem with monitoring is that you are always waiting for an event to happen. If that was a 30-year event, we would have to wait again for an average of 30 years. The advantage of doing laboratory experiments is you can subject the soil to an extreme event. We're working very hard to understand what happened. But if you understand the form of an element, then you can understand the

conditions that would trigger transformations. That's the advantage over just waiting. For any sort of planning you need a model. The only way to do that is to understand the basic chemistry and physics of the system. You can't do that by waiting and monitoring. We're going to extract a soil monolith, take it back to the lab as a representation of some fraction of the soil environment, and then force the system to go anoxic to conditions that might represent a 30-year storm.

Question: Will Neff: I was interested about your remark that the organic fraction and the residual fraction in the soil vary inversely in terms of plutonium content. Can you comment about that relationship in terms of mobilization?

Answer: Bruce Honeyman: What it represents at this point is the two major fractions are the organic and residual fractions. The others are 10% or less. You're asking is there competition between those two phases for plutonium. We don't know yet.

Question: Beverly Lyne: What is going to be done with the conclusions of your studies?

Answer: Bruce Honeyman: One question is, what soil action level will be protective of surface water? There are other questions associated with remediation, etc., and in order to do that, you need to understand the physics and chemistry of the system. You would want to add a model, and frame it in a way that you can treat it mathematically. In the end, we want to come up with a mathematical model that is validated, that can answer these questions.

Question: Tom Marshall: Have you finished the final report on the work you've done?

Answer: Bruce Honeyman: No, the project was really started the end of May, and we were working on samples through the summer. We're still analyzing some samples. After Dr. Choppin gives his review, we will make corrections and send it out for review.

Question: Tom Marshall: You gave an update on the progress late this summer. At that point you said you were finding in one area that approximately 90% of the plutonium was in the organic fraction. Has your assessment changed?

Answer: Bruce Honeyman: It was lowered slightly because of the residual fraction. But it ranges from about 20-80%, but still a significant portion is in the organic fraction.

Question: Kenneth Werth: Between 21-30 days a year we get high winds at Rocky Flats. Some of these winds reach over 100 miles an hour. The winds will pick up soil that has been contaminated. Is there any research about how far these materials are blown offsite?

Answer: Bruce Honeyman: No, that's not part of what this group is doing.

Question: Tom Clark: Is your budget adequate?

Answer: Bruce Honeyman: No, for the time involved, it's not. Next year we have put in a work plan to scale up the project, probably about 4-5 times larger. We'll have more people involved and be able to do more work.

PRESENTATION AND DISCUSSION - BUILDING 779 DECOMMISSIONING OPERATIONS PLAN (Dave Nickless, DOE-RFFO): Mr. Nickless presented a preliminary review of the Building 779 Closure Project. The objective of the project is to safely decommission the first major nuclear facility at Rocky Flats. Preparation of the DOP is the first step in the process, and there will be a 45-day public comment period on the document when it is completed. Building 779 is considered to be small compared to other plutonium facilities. Constructed in 1965, it was originally a research and development facility, and housed process functions. First steps will be maintenance and surveillance, then installation of criticality detectors and air monitors, followed by asbestos abatement, removal of furniture and equipment, and removal of loose equipment and materials from inside the glove boxes. The building will be characterized before and after D&D occurs. A special process is planned for removal and demolition of just the glove boxes, including maintaining ventilation, using a hydraulic shear for those boxes that need to be reduced in size, and using a special containment system. The site hopes to limit the amount of reduction work on glove boxes. The end-state for the D&D project is to have the buildings removed to ground level, and to either remove or close off access to tunnels which link Building 779 to other buildings. The building also has a small basement, which will remain in place for now in order to avoid excavation and disturbing soils in the area. All process tanks and piping will be removed. The building foundation will then be covered with a rubber roof coating. Anticipated wastes from D&D at Building 779 are asbestos, some PCBs, low-level mixed waste, low-level waste, sanitary wastes, and both TRU and TRU mixed waste. CAB's D&D / Closure Plan Focus Group is studying the DOP. Board members are encouraged to participate. The site asked CAB members and the public to visit Building 779 for a tour to better understand the nature and scope of the project.

Q&A / Comment Session:

Question: Mary Harlow: One technology need is proper equipment for characterizing radioactive waste. I have a question about the adequacy of the equipment being used at the site now. Is RMRS actively looking for high tech equipment to be able to characterize the buildings appropriately?

Answer: Dave Nickless: There are assaying capabilities, for TRU and low-level, to discern between the two. For some items, the only thing you can do is a swipe of surfaces.

One technology we're looking at is to find a better way to characterize a piece of equipment that has a large surface area.

Question: Eugene DeMayo: What is the rationale behind leaving the basement of the building and not removing the entire building structure at once?

Answer: Dave Nickless: That's something we would like public comment on. The thinking was that in order to remove the basement, there would be a lot of soil disturbance. The major risk reduction we would achieve is in removal of the building. The basement is not a grossly contaminated area.

Question: Linda Sikkema: You talked about the 14-day workout with the regulators, what are some of the issues you're trying to resolve?

Answer: Dave Nickless: One issue is the regulators would like to see an organizational structure on how the project will be managed. Our feeling is that we would not want to have it in the DOP, so that we have flexibility to make changes as necessary without reapproving the DOP. John Rampe: Another issue is how we handle submittal and approval of information that is not well developed yet. Steve Tarlton: The questions remaining are more administrative than technical, focusing on authority issues and the level of detail that is required.

Question: Tom Davidson: What hazardous materials will you be monitoring for airborne release during the demolition phase?

Answer: Dave Nickless: We haven't answered that question yet. We will later develop a separate demolition plan that covers those issues in more detail.

Question: Beverly Lyne: Do you have any idea how many gloveboxes you plan to do in the first year?

Answer: Dave Nickless: We have a proposed performance measure currently to do 40 gloveboxes for \$8 million. We hope to do more than that. The goal is to find efficiencies at other operations at the site and try to funnel some of that money into Building 779 to do more. We'd like to do 100 gloveboxes in a year.

Question: Kenneth Werth: You have 800 buildings to be demolished. All of this waste material is supposed to be put in containers. You will have a huge mountain of containers sitting out there. Also, these containers will cost a lot of money. Why are you looking at this method? That's not solving the problem of confining the waste.

Answer: Dave Nickless: We are going to be generating a lot of waste. There will be a lot

of containers. We have a limited amount of onsite storage space. Eventually that will be a bottleneck if we aren't able to ship waste offsite. Currently we are shipping low-level and low-level mixed waste offsite. A key to this project is the opening of WIPP at some point.

Question: David Navarro: Another related issue is Envirocare, and whether it can accept DOE's waste. What are your backup plans and the cubic volumes associated with that facility?

Answer: Joe Legare?: A large portion of what we have is mixed waste onsite. Right now there is only one place to send that, which is Envirocare. We have regulatory commitments to meet. If we can't ship offsite, we have committed to building acceptable storage space to accommodate the waste. The impact is that funds are not budgeted for that, and it has to come from somewhere, most likely from closure activities.

Question: Alan Trenary: At the site I saw temporary buildings, like plastic tents. I would like to see something along those lines created for when the building is actually brought down, so that it could contain anything that might get out and be carried along in the wind or whatever.

Answer: Dave Nickless: That's not the first time someone has brought that up. That's why we have public comment on the DOP. As we get closer to the demolition phase, we will review that idea.

WORKER CONTAMINATION REPORT (Bob Tiller, Kaiser-Hill): Mr. Tiller with Kaiser-Hill gave a report to the Board on worker exposures recently discovered. Two individuals received positive bioassay results, confirming they had received measurable radiation exposures. A team was organized to review the workers' job history and to attempt to identify what happened. The doses are linked to two tank cleaning jobs at Building 774 that took place in August 1996. Other personnel who worked on the projects did not receive contamination. It appears the doses are due to a ventilation system failure. Apparently some work control issues are involved, similar to what occurred with the T3/T4 incident in September 1996. Other problems include the timeliness of the notification, the lack of internal notification of off-normal conditions, and area monitoring/air sampling. The review team will check to see if there was adequate air monitoring in place at the work site. At the time, the buffer zone air monitoring stations showed no release, but there is a possibility of some contamination having moved into the area. Kaiser-Hill did a self-report as a violation under Price Anderson, briefed DOE-RFFO and notified the media and public. As a precaution, the site suspended use of outside tents pending investigation and re-evaluation.

PUBLIC COMMENT PERIOD: No comments were received.

DISCUSSION WITH REGULATORS REGARDING PERIODIC UPDATES TO CAB (Tom Marshall): The Board asked EPA, CDPHE and the DNFSB if those agencies would be willing to begin giving reports on a regular basis to CAB at its monthly meetings. There will be a revolving schedule, with each agency having a 10-minute agenda item every three months. CAB would like the regulators to give the Board information on what they are working on, and brief them on hot topics and other issues the Board may not normally hear about. This will begin at the December 4 Board meeting, where both EPA and CDPHE will discuss milestone setting. In between their regularly-scheduled briefings, the regulators are encouraged to submit written reports to CAB for distribution with the Board packet.

APPROVAL OF FOCUS GROUP CO-CHAIRS (Tom Marshall): Recommendations for co-chairs were forwarded to CAB for approval from both the D&D / Closure Plan Focus Group, and the Site Wide Issues / Budget Focus Group.

Decision: Approve Tom Clark and Sasa Jovic to serve as co-chairs of the D&D / Closure Plan Focus Group. Approve David Navarro as the co-chair for the Site Wide Issues / Budget Focus Group. APPROVED BY CONSENSUS.

AD HOC FOCUS GROUP - ENVIRONMENTAL MONITORING REPORT (Tom Marshall): An ad-hoc focus group will be convened to review and discuss the results of the environmental monitoring study recently completed by Parker-Hall on behalf of the CAB. This ad-hoc group will be charged with developing recommendations from CAB to DOE and the site, based on what was reported by Parker-Hall and PHI's conclusions of the effectiveness of the site's monitoring program. Board members and the public are encouraged to work on the ad-hoc focus group. The first meeting will be held in early December, following receipt of the final report from Parker-Hall, which is expected to be received in the next week or so.

NEXT MEETING:

Date: December 4, 1997, 6 - 9:30 p.m.

Location: Arvada Center for the Arts and Humanities, Studio 11A & 11B, 6901 Wadsworth Boulevard, Arvada

Agenda: Kaiser-Hill performance measures; updates from EPA and CDPHE on RFCA milestone setting for FY98, proposed letters on worker retaliation, and safeguards and security issues; CAB outreach proposal

MEETING ADJOURNED AT 10:05 P.M. *

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

RESPECTFULLY SUBMITTED:

Tom Gallegos, 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.

[Top of Page](#) | [Index of Meeting Minutes](#) | [Home](#)

[Citizens Advisory Board Info](#) | [Rocky Flats Info](#) | [Links](#) | [Feedback & Questions](#)