Rocky Flats Coalition of Local Governments

Boulder County City and County of Broomfield Jefferson County

City of Arvada City of Boulder City of Westminster Town of Superior

Rocky Flats Coalition of Local Governments Board Meeting Minutes
Monday, October 7, 2002
8:30 – 11:10 a.m.
Mt. Evans Room in the Terminal Building
Jefferson County Airport, Broomfield

Board members in attendance: Tom Brunner (Alternate, Broomfield), Mike Bartleson (Alternate, Broomfield), Sam Dixion (Director, Westminster), Lorraine Anderson (Director, Arvada), Jane Uitti (Alternate, Boulder County), Karen Imbierowicz (Director, Superior), Michelle Lawrence (Director, Jefferson County), Nanette Neelan (Alternate, Jefferson County), Lisa Morzel (Director, City of Boulder).

Coalition staff members and consultants in attendance: David Abelson (Executive Director), Kimberly Chleboun (Program Manager), Melissa Anderson (Technical Program Manager), Barbara Vander Wall (Seter & Vander Wall, P.C.).

Members of the Public: John Corsi (Kaiser-Hill), Dave Shelton (Kaiser-Hill), Bob Nininger (Kaiser-Hill), John Rampe (DOE), Joe Legare (DOE), Russel McCallister (DOE), Liz Wilson (DOE), Laurie Shannon (USFWS), Mark Sattleberg (USFWS), Rob Henneke (EPA), Patricia Rice (RFCAB), Paula Elofson-Gardine (EIN), Kristi Pollard (Senator Allard), Bob Lynch (RFSOIU #1), Gail Bange (Wackenhut), Shirley Garcia (Broomfield), Al Nelson (Westminster), Nancy Lemein (Arvada), Roman Kohler (Rocky Flats Homesteaders), David Clark (LANL), David Janecky (LANL), Ian Paton (Wright Water Engineers).

Convene/Agenda Review

Chairman Sam Dixion called the meeting to order at 8:50 a.m. David Abelson stated the Site Wide Water Balance briefing was rescheduled as the Kaiser-Hill presenter could not attend the meeting.

Business Items

1) Motion to Approve Consent Agenda – Lorraine Anderson motioned to approve the consent agenda. Tom Brunner seconded the motion. The motion passed 6-0 (Superior was not yet present).

2) Executive Director's Report - David Abelson reported on the September USFWS refuge scoping meetings, stating they were well attended, but for every comment USFWS received there was another comment with an opposite opinion. Thus, it is important for USFWS to know, and have documentation of, where the local governments stand on the refuge scope. He urged the governments to submit comments focusing on the big picture vision to USFWS by October 31, 2002. Additionally, David asked the Board if it still remained a priority to have a local government refuge subcommittee work directly with USFWS. He also asked what their staffing resources are, as the last refuge subcommittee meeting was poorly attended. David said the group meets every couple of months with USFWS and it is

a great opportunity provided to the Coalition under the Refuge Act. He also encouraged communication within each municipality so that both the Rocky Flats and open space staff attend, if possible. The Board agreed it is important to continue the refuge subcommittee.

Second, David discussed Division of Wildlife testing for chronic wasting disease. He said 25 deer were supposed to have been culled October 6, but due to a legal disagreement between the State and DOE the deer would not be culled until after hunting season. At the September Board meeting the Board had shown interest in having USFWS test these culled deer for actinide uptake. Since then, David learned that USFWS has not decided whether they will conduct the tests, so they will store the 25 deer in a freezer at the Arsenal. David then described types of testing and cost, which is approximately $5000 per deer. He also said actinide uptake studies performed by CSU in the 1970s and 1992 showed relatively low uptake. Thus, there are questions regarding what the tests would add to the current body of knowledge, and how the tests would be paid for. David said USFWS has two reasons to test the deer: 1) As part of the transfer of lands from DOE to USFWS, USFWS would need to determine if there are any data gaps from the prior studies that need to be filled in (due diligence); and, 2) If USFWS decides to allow hunting on the refuge they may need new analyses to determine whether hunting should be allowed. Lisa Morzel said if USFWS is considering allowing hunting it would be prudent to do this type of study. She also said if baselines are already established then testing could determine if concentration levels have changed. Lisa asked if they could also test for trace metals and organic compounds. Mark Sattleberg (USFWS) said other testing would be possible, but USFWS would not have the money to perform volatile organic compounds (VOC) testing on the deer before the organics within the deer are no longer available. The holding time for organics is seven days. He added this is the type of study they would do for due diligence, however, using burrowing animals to test for VOCs would be preferential to using deer. Mark explained that the collection of deer may be fortuitous, but deer may not be the best indicators. Lorraine Anderson said hunters do not eat burrowing animals, and they should test for species humans would be likely to consume. Lisa asked if the Board should lobby for funding sources and Mark said that USFWS is petitioning DOE for money under the Memorandum of Understanding. Tom Brunner said USFWS should thoroughly examine other studies first. Paula Elofson-Gardine suggested reviewing early DOE archives, including Lawrence Livermore and Los Alamos studies, as they were more sensitive than CSU studies. Lisa also suggested studies from INEEL. David said that part of the concern is public perception about prior tests, so it is therefore ironic that some would prefer to look at DOE studies instead of independent studies by CSU. Shirley Garcia noted the Actinide Migration Evaluation never looked at uranium uptake, so USFWS should consider this in their studies.

Third, David said the next staff meeting would include a team building exercise to take a step back and revisit how to make the meetings more valuable, why the Coalition is important, and what the Coalition is trying to accomplish. Fourth, David provided the Quarterly Finance Report.

David then asked Melissa Anderson to provide the Board with an update on information obtained on the Original Landfill. Melissa explained she has been discussing Original Landfill issues with the regulators and the Site, and has questions regarding sampling, tritium, and the alternatives analysis. She overlayed Kaiser-Hill maps of surface soil and subsurface sampling and found that no subsurface samples were taken directly underneath the surface Tier I hits, where it seems it would be the most likely place to find radionuclide contamination in the subsurface. She learned that surface and subsurface sampling for the Original Landfill were conducted at two different times and were not coordinated, thereby potentially explaining the data gaps just shown on the maps. When Melissa raised this question with Kaiser-Hill they said it does not matter what is underneath any hotspots because the contaminated area will be removed during remediation. Melissa emphasized that while what the remedial strategy should be is important, it still does not answer the question of what is in the Original Landfill and at what concentration. The issue is the information that will help determine what the remedial strategy should be and its long-term stewardship implications.

Melissa then discussed the issue of tritium, which was indicated as a contaminant in several surface water wells close to the Original Landfill. This issue was raised by CDPHE and EPA in a joint letter to DOE last May. Melissa provided a background on tritium and explained the hits shown in the Characterization Report range from 200 picocuries per liter (pCi/L) to 3000 pCi/L. The sampling results were from the early 1990s to 2000. She displayed a map from EPA reflecting the locations of the hits, noting they were within the range of background and higher. She added the 3000 pCi/L hit is five to six times higher than background (500-600 pCi/L at Rocky Flats), but 100 times less than the hit at Great Western Reservoir in the 1970s. Melissa said the tritium hits may have no connection to the Original Landfill, but it does reveal an information gap. According to the EPA, EPA is pushing the Site to address their questions now, but the Site wants to wait until the draft decision document is written. Currently, CDPHE and EPA are not sure if the Site will have to take additional samples before the remediation alternative is chosen.

Melissa stated that because of these uncertainties the regulators are pushing for a very comprehensive alternatives analysis for remediation of the Original Landfill, including removal with both offsite and onsite disposal of wastes. She said Coalition staff hopes to have the regulators discuss the alternatives analysis with the Board at the December Board meeting. David again emphasized that this information Melissa presented does not speak to what should be done with the Original Landfill. Melissa then asked for feedback from the Board on the information she presented and how to proceed.

Tom Brunner said it is the Coalition staff's job to inform the Board of anomalies in the data and confer with EPA and CDPHE so the Board can make decisions based on the information. He therefore believes Coalition staff is on the right path. Nanette Neelan asked why the Site is reluctant to do a better characterization now, and Melissa explained it is a matter of spending the money now or while they are remediating hotspots. David said it is a classic conundrum the Site faces on whether money should be spent on characterization or cleanup, and that different remedial decisions require differing levels of characterization. Melissa said since the Site has not decided upon a remediation strategy it is hard to determine what additional characterization would bring to the table. Lisa Morzel agreed with Tom and questioned whether or not the estimated cost to remediate the landfill was correct. Lorraine Anderson said the notion of an accelerated 2006 cleanup would only be acceptable to the Board if the cleanup is reasonable and safe. Dave Shelton (Kaiser-Hill) said he would be happy to go into further detail at a later meeting, but he did not realize Melissa was going to raise these issues today and did not have the appropriate people on-hand to discuss it. David said he is planning further discussion at the December Board meeting. Sam Dixion said the information Melissa presented sparks distrust and no confidence in DOE, and felt DOE had provided misleading information. Joe Legare (DOE) said he did not know what facts Sam felt had been misleading and DOE would be happy to provide any information the community wanted. He also explained that the landfill is heterogenous, unlike soil, and one sample shows only what is at that location, and one cannot extrapolate information about other locations. Joe confirmed there will be a thorough public process vetting the alternatives, which will not be dependent on cost. Sam said DOE lacks credibility. Lisa directed staff to continue moving forward in this direction and make sure sampling is done properly, and perhaps follow-up on the issue of surface hotspots and subsurface sampling.

Public Comment

Shirley Garcia (Broomfield) said the issue of data gaps has not only been an issue with the Original Landfill, but also other areas, such as the Present Landfill and Solar Ponds.

Paula Elofson-Gardine (EIN) also cited a concern about adequacy of data and differences in methodology, as well as redundancy built into cleanup estimates and cleanup contracts.

Actinide Migration Evaluation Briefing

John Rampe (DOE) provided an introduction to the briefing by explaining that DOE decided, after a wet year in 1995, they needed to better understand how actinides behave in the environment at Rocky Flats. Thus, they recruited a premier team of independent scientists from a number of fields to form the Actinide Migration Evaluation (AME) group. John then introduced David Clark (LANL), David Janecky (LANL), and Ian Paton (Wright Water Engineers).

David Clark began by explaining the AME group was formed to examine existing data, direct collection of new data, recommend sophisticated experiments and models, and quantify pathways for actinide migration. All experiments, models, and analyses demonstrate that plutonium and americium transport at the Site are dominated by wind and surface water erosion processes. These findings are summarized in the 2002 Pathway Analysis Report, which ranks the actinide transport pathways. Dr. Clark then described the details of their study.

Dr. Clark said the purpose of the AME Pathway Analysis Study was to evaluate actinide behavior and mobility in ground- and surface-water, air, soil, and biota at the Site, in order to establish a defensible scientific understanding to support Site closure and stewardship. The study was intended to help evaluate actinide migration's connection to surface water exceedances and long-term surface water compliance, as well as the impacts on remedial actions such as the 903 Pad (plutonium and americium) and the Solar Ponds Plume (uranium). Dr. Clark stated the conceptual model evaluated transport pathways for air, surface and groundwater, as well as biological pathways. The models differed based on geochemistry, as the chemistries between plutonium and americium, and uranium are fundamentally different. He said the models also took into account actinide background levels.

Dr. Clark then described primary sources and distribution of the Site actinides. The 903 Pad is the primary source of surface plutonium and americium, with both being deposited via wind, with spatial heterogeneity, east of the 903 Pad. He added that 90% of this plutonium and americium are deposited in the top twelve centimeters of soil, and nearly all of it is within the top twenty centimeters. Site-specific studies confirmed that the plutonium and americium exist in low oxidation states, meaning they are relatively insoluble, they are strongly sorbed to particles and natural colloidal materials, and they physically transport as colloids or particulates. Thus erosion modeling is essential. Conversely, uranium has multiple point sources and no surface plume, implying that this uranium can be transported as a soluble species, but sorption and precipitation often significantly retard uranium movement in the environment. Thus, the majority of Site-released uranium remains in the immediate vicinity of primary sources.

Next, Ian Paton discussed the specific pathways. The air pathway provides the highest transport of actinides onsite. The AME group used air monitoring data combined with wind data, and wind tunnel studies combined with soil actinide data, wind data, and a computer model to estimate offsite transport. They found that the majority of the airborne radioactive material is natural uranium in soil particles.

Dr. Paton then described the surface water pathway as the second highest transporter of actinides, providing 10% less transport than air. He explained the studies in detail, including contributing pathways, actinide loads measured in surface water, the erosion process, and the erosion and actinides transport model. The models showed that up to 99% of plutonium input to surface water is from hillslope erosion, as opposed to shallow groundwater or air deposition inputs. Dr. Paton stated the ponds settle out 80-90% of the plutonium and americium that flows into the ponds.

Dr. Paton said the amount of actinides transported offsite via groundwater is equal to 1% of the amount

transported by surface water. Groundwater flow is predominantly controlled by bedrock and topographic surfaces, and contributes to only 1% of surface flow. He then listed the biological pathway as the lowest actinide transport mechanism, explaining that plutonium associated with plants is on the plant surfaces (as opposed to within the plant tissues) and there is little accumulation in animal tissues. He noted soluble uranium can be taken up by plants, but it is in groundwater more than the surface water and not as accessible. David Janecky briefly discussed the CSU studies at Rocky Flats compared to studies done at other DOE sites and in Russia. Dr. Paton stated the studies determined that wildlife and vegetation are insignificant contributors to overall actinide migration at Rocky Flats.

Dr. Paton then explained the validation of the conceptual model and listed continuing investigations, including: subsurface actinide data in the Industrial Area; surface water isotopic uranium data at boundary monitoring stations; the existence and extent of plutonium and americium colloids in shallow groundwater; and, a uranium groundwater pathway evaluation. He concluded by listing the following key findings:

- Physical (particulate) transport in air and surface water are the dominant migration pathways for plutonium and americium.
- 80-90% of plutonium and americium settles out in the ponds due to particulate nature.
- Post-closure Site configuration must be considered with respect to the evolving landscape (i.e., erosion and sedimentation).
- Water management closure planning must consider these processes.

Nanette Neelan asked about a timeframe for the continuing investigations, and Ian said they are already working on them. Lisa Morzel referred to the settling ponds and asked where the other 10-20% of the actinides go. Dr. Paton said they continue in the surface water and can also settle between the ponds and the fenceline. Dave Shelton added that the B-series ponds have sediments that will need to be cleaned out. Melissa Anderson said she thought all groundwater from the Site surfaced onsite and asked for clarification. Ian explained there is a thin veneer of alluvial material, over impermeable bedrock, that the groundwater can follow offsite so that it may end up downstream. He added the Site Wide Water Balance Study would address groundwater flow and the dominance of evapotranspiration. Lisa asked how the actinides would mix with organic compounds. Dr. Paton said worldwide studies have shown that in general humic acids are probably the primary complexing agent in nature, and organic humic and fulmic acids can complex strongly to plutonium (IV) and americium (III). He emphasized that this plutonium and americium also associate with mineral particles, wrapped up in colloids, thus there are no soluble organic materials containing plutonium floating around the Site. Lisa asked what agent could be used to immobilize these particulates and minimize air transport. Dr. Janecky said soils and grasses keep them tied together, hence the importance of keeping healthy grasslands. Lisa asked about the impact of fire, and Dr. Janecky responded the fire scar now has the best grass onsite and fire is good for the Site long-term.

Round Robin

There was no additional comment from the Board.

Public Comment

Paula Elofson-Gardine said she hoped the Site would revisit the issue of the process waste lines, and the potential for plutonium dissolution chemistry with nitric acid within the Solar Ponds Plume and the Walnut Creek drainage. David Janecky commented that soils are reactive and good at getting rid of nitrics.

Big Picture

David Abelson reviewed the Big Picture. At the November meeting the Board will receive a briefing on draft RFCA language to be released, as well as the Site Water Balance Study. The Board will also begin reviewing the budget and strategic plan for FY03.

The meeting was adjourned by Sam Dixion at 11:10 a.m.

Respectfully submitted by Kimberly Chleboun, Program Manager

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