

**Rocky Flats Citizens Advisory Board  
Meeting Minutes  
September 4, 2003  
6 to 9:30 p.m.**

**Jefferson County Airport Terminal Building, 11755 Airport Way, Broomfield**

Victor Holm, the Board's chair, called the meeting to order at 6:05 p.m.

**BOARD / EX-OFFICIO MEMBERS PRESENT:** Dave Davia, Joe Downey, Jim Fabian, Anne Fenerty, Shirley Garcia, Earl Gunia, Victor Holm, Bill Kossack, Andrew Ross / Joe Legare (DOE), Steve Gunderson (CDPHE), Dean Rundle (USFWS), Tim Rehder (EPA).

**BOARD / EX-OFFICIO MEMBERS ABSENT:** Jim Kinsinger, Mary Mattson

**PUBLIC / OBSERVERS PRESENT:** Paula Hansley (Geologic Consultant – Boulder), Ted Aufer (CLTS, Brighton), Ralph Stephens (Denver), Alan Trenary (Westminster), Vanessa Safonovs (Fort Collins), Adriane Martinez (University of Denver Law School), Rob Henneke (EPA), John Corsi (Kaiser-Hill), Carl Spreng (CDPHE), Mark Sattelberg (USFWS), Bob Davis (Kaiser-Hill), Bob Nininger (Kaiser-Hill), Norma Castaneda (DOE-RFFO), John Boylan (Kaiser-Hill), Lee Norland (Kaiser-Hill), Jerry Henderson (RFCAB staff), Ken Korkia (RFCAB staff), Patricia Rice (RFCAB staff)

**PUBLIC COMMENT PERIOD / NEW BUSINESS:**

**Comment:** Alan Trenary: Alan expressed his concern regarding the cutbacks in the Board's budget and also that DOE is cutting back on its public outreach in a time when there is a need for greater public involvement in long-term stewardship especially given that contamination will remain at the site.

**New Business:** Anne Fenerty: Anne introduced Paula Hansley from Boulder who has a background in geology as a potential new Board member.

**PRESENTATION AND DISCUSSION ON SOIL SAMPLING:** Lee Norland with Kaiser-Hill gave the presentation. He began by noting that the site has conducted an extensive characterization of the property to identify known and suspected areas of contamination. The site initiated this characterization as part of the CERCLA (Superfund) investigations in the late 1980s and early 1990s. These initial investigations led to the development of a report called the Historical Release Report that describes all known and suspected areas of contamination at the site. The original report identified 178 known contaminant release sites, added 88 new ones, and identified 61 potential releases without known locations. This report is a living document that has been updated through the years and currently serves as a tool for the preparation of no-further-accelerated-action documentation for various release sites and ultimately will be used in the preparation of the Comprehensive Risk Assessment.

Lee explained that the site has prepared numerous Operable Unit Remedial Investigation reports, nine in the Buffer Zone and seven in the Industrial area. These reports, written from 1986-1995, were quite extensive in identifying and documenting the areas of contamination. In 1999, the state health department initiated an extensive review of past area photographs to identify other potential contamination in the Buffer Zone. A follow-up to this review was conducted most recently this year. In summary, Lee noted that these characterization efforts form the foundation for knowledge about contamination at the site.

Lee next explained that soil sampling has been guided by the Buffer Zone and Industrial Area Sampling and Analysis Plans. Addenda to these plans are prepared for individual release site groups. The site also uses a consultative process with the regulators to determine on a case-by-case basis where additional sampling might be necessary. For the Buffer Zone, the site has taken 2,575 surface soil samples and 6,520 subsurface samples in 4,255 different sampling locations. In the Industrial Area, there have been 3,649 surface soil samples and 4,169 subsurface samples in 3,647 different sampling locations. As more buildings and facilities are removed in the Industrial Area, the site will have greater access to conduct more sampling. Lee projects 10,000 more samples will be taken in the Industrial Area in 2004. He explained that sampling is based on statistical calculations and also in a biased manner, if necessary, for known areas of contamination. Most of the samples are analyzed in on-site laboratories, with the exception of semi-volatile organics, beryllium and a few others. In-process sampling occurs during remediation projects, based on consultations with the regulators, and is used during unanticipated circumstances and for go-no-go decisions. Most of these samples are done in the field using hand-held instruments, but they also send some of the samples to the on-site labs. Confirmation samples, taken after remediation projects are completed, are sent to off-site labs for higher quality analysis. The confirmation samples are used to confirm that remediation goals have been met.

Lee concluded his presentation by describing the Comprehensive Risk Assessment (CRA) that will be prepared after all remediation work is complete. This assessment will use all the data collected after remedial actions, including all the historical data. The CRA process determines contaminants that are the risk drivers. As part of the process, there will be a data gap analysis to determine if additional samples are needed. Once the final CRA is prepared, it will have an appendix in disk format that will contain all accumulated data.

Current and historical data that has been accumulated so far can be found in the Rocky Flats reading rooms and is also available on the Environmental Data Dynamic Information Exchange (EDDIE) that is on the site's website. Because of residual security concerns, one needs to obtain a password to access the data. However, the site will check to see if this is still necessary now that all the plutonium has been removed. Lee concluded by stating the site has an extensive library of maps showing contamination and would be willing to develop custom maps based on the Board's interests.

In discussion following Lee's presentation, a Board member said the Comprehensive Risk Assessment would be of vital interest to the public and suggested the regulators set up an unspecified public process, such as a workshop, to explain the methods and sampling data that would go into the CRA.

In answer to a question about Process Waste Lines, Susan Serreze of Kaiser-Hill said the PWLs are going to be characterized in two ways: (1) They will be characterized along with the individual hazardous substance site (IHSS) they are associated with, and (2) Pipes with known or suspected leaks will also be characterized. Steve Gunderson with CDPHE said all lines less than 3 feet underground will be removed. He said the lines already tested have shown only low levels of radioactivity and have been shipped as low-level waste. Steve said the concern is whether there are or have been pipes that have been chronic leakers over a long time.

Another member asked how they chose sites to sample in the buffer zone. Lee answered the Site examines records, interviews people, and gets information about where possible contamination might be located. They also look for soil disturbance areas in the Buffer Zone. In answer to another question, Lee said that most of the windblown contamination is within the top couple of centimeters of the surface. Other contaminated areas may be deeper but most of the contamination is within the top 6 inches. He said the SAP and RFCA specify the top 6 inches of surface soil be sampled. He said when they do borings for samples, they are done in two-foot intervals. For example, they might sample at 2 feet, 4 feet, and so on.

Finally, it was suggested that the site refine the sampling and analysis of the actual remaining contamination in the industrial area. This information will help the site and the public better understand exactly how much and where any residual contamination remains at the site post-closure.

**PRESENTATION AND DISCUSSION ON GROUNDWATER AND THE PRESENT LANDFILL:** John Boylan with Kaiser-Hill started the presentation with a primer on site groundwater. Rocky Flats is located in a semi-arid environment, so there is not a great quantity of precipitation available to soak into the ground and recharge the groundwater system. He estimates that of the 15 inches of annual precipitation, approximately 1-2 inches eventually reaches groundwater.

The site's geology includes the predominant upper unit, the Rocky Flats alluvium, comprised of mixed gravels, sands and clays. This unit overlies a thick layer of bedrock comprised of low permeability claystone. There are several stream drainages that bisect the site. Groundwater within the alluvium is bounded below by the bedrock, resulting in a lateral flow from west to east across the site. The groundwater discharges at seeps along the contact between the bedrock and the alluvium. The typical groundwater flow rate at the site is 10-20 feet per year, which increases to an average of 50 feet per year around the buildings. The bedrock layers of clay that separate the Rocky Flats alluvium from the aquifers in the Denver metro area are about 800-900 thick. These aquifers are not affected by Rocky Flats.

Because of the close connection between groundwater and surface water at the site, the main focus of groundwater monitoring has been protection of surface water. Since the 1950s, over 1,400 monitoring wells have been installed at varying depths, most of which are above the bedrock claystone at varying depths. As the site moves toward closure, unnecessary wells are being abandoned. Currently, groundwater monitoring is implemented through the site's Integrated Monitoring Plan, which lists wells to sample, how often, and analytes to sample. The monitoring plan is formally reviewed on an annual basis and updated quarterly in consultation with regulators and other interested parties.

The main analytes of concern at the site are volatile organic compounds (VOCs), uranium and nitrates. About 200 wells are sampled with a focus on plumes, priority buildings, drainages and the eastern site boundary. Results are presented in quarterly and annual reports and at the quarterly Data Exchange meetings.

VOCs are the predominant groundwater contaminant at the site. The VOC plumes are currently intercepted and treated at the Mound and East Trenches areas in a program to protect surface water. Uranium concentrations in groundwater tend to increase naturally as groundwater flows from west to east. Because of already high naturally occurring uranium in the Front Range, the site must distinguish between naturally occurring and man-made uranium. Uranium is a readily identifiable contaminant at the former Solar Evaporation Ponds at the site. Nitrate contamination is also noted as a contaminant in this area. The uranium plume is smaller than the nitrate plume because of the greater solubility and mobility of nitrates in relation to uranium. The uranium and nitrate plumes are intercepted and treated downgradient of the Solar Evaporation Ponds to protect surface water. John noted plutonium is not considered a groundwater contaminant at the site because it tends to stick to soil and colloids, a condition that significantly limits its mobility. Metals, tritium and other substances are also not considered significant groundwater contaminants.

In discussion following John's presentation, the issue of colloidal transport of plutonium was raised. At the Nevada Test Site, plutonium was found to have migrated up to 1.3 km from a well-established subsurface source. In that case, according to the site, the plutonium was propelled by a hydrogen bomb blast through fracture zones, as opposed to Rocky Flats, where the findings are conclusive that plutonium is not moving in significant amounts in the groundwater. The Actinide Migration Panel found a small number of Rocky Flats groundwater wells that contained femtocurie per liter concentrations of plutonium. A femtocurie is one quadrillionth of a curie, or one thousandth of a picocurie. The site further responded that the groundwater regulatory regime at Rocky Flats is predicated on protecting surface water quality. The enforceable plutonium surface water standard is 0.15 pCi/L. No groundwater plume map has been drawn for plutonium because it is not found in groundwater at levels approaching a regulatory concern.

It was also asked whether the site's conclusions about the groundwater contamination would be subject to independent peer review. The RFCA parties responded that the

question has yet to be decided.

The topic of site-wide groundwater contamination was used as an introduction to the situation at the Present Landfill. Bob Davis with Kaiser-Hill gave a presentation about the landfill. Located at the head of No Name Gulch north of the Industrial Area, this unlined landfill was primarily used for solid waste but received some hazardous waste as well. Continuing with the previous discussion about groundwater, Mr. Davis discussed a hydrologic model depicting groundwater flow in the vicinity of the Present Landfill. It shows that a groundwater intercept and barrier system installed some years ago continues to effectively divert groundwater from flowing laterally into the landfill. The basis for this conclusion is a water balance calculation that shows the volume of leachate emanating from a seep at the toe of the landfill is practically equal to the amount of precipitation infiltrating through the surface of the landfill. Based on the site's analysis, a clay barrier surrounding the landfill prevents groundwater exterior to the landfill from mixing with the landfill itself. Thus, they believe the flow of the seep will significantly decrease after installation of a cover atop the landfill.

Equally important are the results of RCRA groundwater monitoring conducted for the last 18 years, which show that the landfill does not impact downgradient groundwater. The seep has shown a limited impact from the landfill, but this water generally meets surface water standards. Sampling for benzene, barium and zinc indicates the seep water hovers around the surface water standards for these constituents. It currently flows through a passive treatment system consisting of a series of flagstones intended to aerate the water and thereby volatilize the organic constituents therein.

Given the above, the strategy proposed is to close the landfill under CERCLA, while meeting the requirements for closing a RCRA Subtitle C landfill. Chief among those requirements is construction of an engineered cover to meet an infiltration limit of 1.3 mm/year. No groundwater action will be required, Bob stated. The existing seep passive treatment system will be retained in order to ensure this point discharge continues to meet surface water standards. The site will apply for a wastewater treatment system exclusion for the RCRA listed leachate and apply for a CERCLA waiver for the point source discharge to waters of the state, which would otherwise require a National Pollutant Discharge Elimination System (NPDES) permit.

There was some discussion of the latter two points. First, for a wastewater treatment system exclusion to be invoked under RCRA, the system must include a tank. In this case, the passive seep treatment system has no tank. The State may exercise its discretion in allowing the seep collection gallery and piping to be considered a tank for regulatory purposes. Those discussions with the Attorney General's office and others are ongoing. Second, the CERCLA waiver requires the site meet all substantive requirements of a NPDES permit. Basically, those requirements are based on the surface water standards established to protect the particular use classifications for which the stream is rated. The site was proposing to sample the seep quarterly, but it was noted that NPDES permits typically require monthly sampling. The State will look into this.

Concerns were raised about the tendency of landfill covers to fail. The site pointed out that the proposed cover, a geosynthetic composite cover, has a good track record. The primary component of the composite cover is a flexible membrane liner (FML) – basically a layer of durable plastic. This material has been used as a liner in many landfill applications throughout the country, even in arid climates. Beneath FML would be a geosynthetic clay liner, basically a thin layer of clay sandwiched between two layers of plastic, which is designed to absorb any pinhole leaks in the overlying plastic. A composite cover is slightly more expensive than the type of compacted clay layer used traditionally for hazardous waste landfills, but more reliable. The topmost layer will include large rocks to discourage animal intrusion.

The Board was interested in how long the site intends to continue groundwater monitoring in the Present Landfill area. Although the site does not believe the landfill and surrounding groundwater are hydraulically connected, they would agree to a groundwater monitoring period of two years following placement of the cap. The concern was raised that if the seep dries up and the groundwater monitoring is terminated, there will be no monitoring of the remedy except for the periodic inspections of the cover.

Also discussed was whether the site will verify the performance of the cover through monitoring of its moisture content. The site claims there is no reason to do this type of monitoring because the composite cover, if installed properly, is presumed to be a sufficient remedy going forward.

The Board discussed its path forward for the Present Landfill. The Closure Projects Committee will take up the issue and begin sketching out a recommendation at its meeting next Monday evening. Some initial feedback from the Board suggested that the committee look at the following topics: Concerns about residual contamination, the prospect of geosynthetic clay cracking in an arid environment, the continuity between installation and maintenance of the cover, NPDES monitoring criteria, long-term stewardship, monitoring and inspections, and the design and QA/QC of the cover.

**RECOMMENDATION LETTER ON LONG-TERM STEWARDSHIP:** Board member Dave Davia presented a letter he had drafted to DOE, EPA and CDPHE that addresses broad concerns about the Rocky Flats Stewardship Strategy and other general stewardship issues at the site. The letter expresses the Board's dissatisfaction with lack of progress and commitment by DOE related to long-term stewardship at the site. In addition, the letter notes the Board's concerns about enforceability of stewardship and other legal and regulator issues, among them the applicability of the state's Environmental Covenants law. The letter also notes the site's lack of long-term stewardship considerations in key planning documents that includes details on long-term monitoring, institutional controls, contingency planning, information management, increased frequency of regulatory reviews in the first nine years post-closure, and the scope of DOE and local presence post-closure to administer long-term stewardship obligations. The letter further voices support for the state in working toward a milestone for development of a long-term stewardship plan. The letter concludes by asking for continuing dialogue with the community on these matters.

The Board approved the letter by consensus, noting that small editorial changes would be made.

**DISCUSSION OF THE BOARD'S TRANSITION PLAN:** Dave Davia began the discussion by noting that ideas generated by RFCAB members at a previous meeting were incorporated into an outline that was used by Ken Korkia and Dotti Whitt to draw up a draft transition plan. A copy of the plan was distributed to members by email earlier in the week.

Dotti said DOE recently published a DOE policy No. 141.2, approved in May 2003, on public participation and community relations. It discusses the department's commitment to public involvement and in essence states DOE cannot perform its mission without public involvement, which helps it make better, more informed decisions.

In reviewing the work done on the draft Transition Plan, Dotti first referred the Board to the Executive Summary in which she tried to show that public understanding and feedback will help DOE's work go more smoothly. The Executive Summary also lays out what the reader can expect in a transition plan. Dotti noted that there are multiple audiences for this report: Gene Schmitt, current manager, who will make a recommendation to headquarters on funding levels for the next few years; Jessie Roberson, head of Environmental Management, who will decide how much money each SSAB will receive in the complex; and Mike Owen, who will be director of Legacy Management, which will oversee post-closure activities and stewardship.

The plan is geared toward educating that audience on the benefit of the CAB, what the CAB has done for DOE, how the CAB has helped DOE to do its work, and to let DOE know the CAB has been effective in the past and will be effective in the future. It starts out with a history of CAB involvement with Rocky Flats cleanup, highlighting areas where the CAB has made an impact at Rocky Flats and helped DOE do its mission. The plan evolves into what the CAB will do for the coming year. It also will include a two-year planning horizon in 2004 and 2005 on the work the CAB wants to do and where it wants to be involved.

Dotti said that as Rocky Flats looks at transition, the CAB needs to look at transition, as well. Dotti said it will also be useful to detail the value of the CAB's 11 years of experience under cleanup and closure activities and how the value of that experience will help the CAB in the future. Dotti said the CAB needs to detail how it will keep the public informed on what is happening. The plan should talk about what the CAB plans to do with its records and to talk about the transition role in legacy management. Dotti said that, in a nutshell, the plan should outline where the CAB has been, the impact it has made, what it wants to do, and where it sees its future.

Dave said the CAB would address these issues at the retreat on Saturday. Dave said other SSABs are also having their budgets cut. Some of those SSABs are being cut away from the site contractors that were supporting them and they are being asked to set themselves up more independently like RFCAB. Dotti said Jessie Roberson wants to know what she is getting for the money she is spending on the CAB. She wants to know what value the RFCAB has.

Dotti said the bottom line is that the CAB has to justify its budget – the CAB needs to tell DOE what the board can do for them and what can't be done. She said the CAB should not talk about level funding. In

the plan, the CAB needs to talk about trimming down and saving costs and getting operating expenses narrowed down, where it will focus its efforts, and where it can be a conduit to the public.

**NEXT MEETING:**

*Date: October 2, 6 to 9:30 p.m.*

*Location: Jefferson County Airport Terminal Building, Mount Evans Room, 11755 Airport Way, Broomfield*

*Agenda: To be determined*

**MEETING ADJOURNED AT 9:30 p.m. \***

(\* Taped transcript of full meeting is available in the RFCAB office.

**RESPECTFULLY SUBMITTED:**

Joe Downey, Secretary  
Rocky Flats Citizens Advisory Board

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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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