



THE ADVISOR

A Publication of the Rocky Flats Citizens Advisory Board

Board Presents its Views on Site Closure



DOE-Rocky Flats Site Manager Gene Schmitt (left) talks with the Board during its October meeting.

A year ago, the Rocky Flats Citizens Advisory Board (RFCAB) embarked on a process of learning about and discussing proposed changes to the Rocky Flats Cleanup Agreement (RFCA). The deliberations that ensued were called the “Integrated End-State Discussions,” because DOE was requesting feedback from the Board on a wide range of interrelated issues whose resolution would go a long way toward determining the final condition of the site at closure. The Board studied everything from hydrology to characterization to surface water monitoring. However, as the discussions unfolded, soil

remediation strategies took center stage. It became clear that the key aspect of the proposed RFCA modifications would be the extent of soil cleanup, particularly soil contaminated with plutonium.

Under the original plan signed back in 1996, only plutonium contamination above the level of 651 picocuries per gram of soil would have been subject to remediation. (A picocurie is one trillionth of the amount of radioactivity in a gram of radium.) Any soil less radioactive than that would be allowed to remain in the environment. That rule applied equally to contamination on the surface of the ground, as well as to contamination in the subsurface.

The proposed modifications stem from the desire on the part of Department of Energy (DOE) to address the contamination that represents the highest risk, within the bounds of a limited site budget. Thus, DOE made clear that any changes to the RFCA had to be revenue-neutral; that is, result in no increase to the overall cost of the closure con-

tract. Under the proposal, surface soil cleanup would be 13 times more stringent than that envisioned in 1996. From the top three feet of soil, all plutonium contamination above a level of 50 picocuries per gram would be removed. In exchange for doing more environmental remediation in this upper layer of soil, DOE would not be required to do as much cleanup in the three-to-six-foot layer. Contamination deeper than six feet would not have to be cleaned up at all, unless there is a pathway which poses a risk to a wildlife refuge worker or degradation of surface water.

The RFCA parties – DOE, the Environmental Protection Agency, and the Colorado Department of Public Health and Environment – formally issued their proposal for public comment on November 12, 2002. In January, RFCAB provided a comprehensive, 15-page recommendation on the proposed strategy as it relates to surface and subsurface soil contamination, surface water and long-term stewardship.

The Board’s recommendations on the proposed RFCA changes were made in the context of several concerns. One of

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News Briefs and Updates

903 Pad Update

Most plutonium contamination in surface soil at Rocky Flats was released from the drum storage field that became known as the 903 Pad. During plant operations, various processes generated organic liquids tainted with plutonium. Until 1967, drums full of these radioactive solvents were stored outdoors, fully exposed to the elements. When the drums inevitably corroded and leaked, the underlying soil became contaminated. To make matters worse, a cleanup effort conducted in the late 1960s backfired, with high winds spreading plutonium over a much larger area than had been initially affected. Finally, in 1969, a three-and-one-half-acre asphalt cap was placed over the most highly contaminated soil to minimize further spread of radioactivity.

Thirty years later, the site has begun remediation of the 903 Pad. The work, conducted under a pair of massive tents to prevent a repeat of past mistakes, involves removing the top foot of asphalt and gravel, plus another foot of native soil. Based on characterization done prior to the start of the project, it was thought that excavating two feet beneath the top of the pad would remove all plutonium contamination greater than 50 picocuries per gram, the surface

soil cleanup level that is currently proposed (see cover story on proposed modifications to the Rocky Flats Cleanup Agreement).

Under a few localized areas of the pad, contamination has been found deeper than projected. In one instance, the site discovered unacceptable levels of plutonium down to a depth of eight feet, where contamination still registered in the 300 pCi/g range. The necessity of digging deeper than originally planned in order to achieve target cleanup levels has resulted in the project being behind schedule and over budget.

This situation at the 903 Pad raises questions with implications for the site as a whole. Is the site's characterization strategy adequate, given that it failed to uncover the depth to which plutonium infiltrated the soil beneath the pad? Does the deeper contamination found here undermine the site's assumption that any plutonium released from buried process waste lines would have remained immobile?

At press time, approximately 20 percent of the pad and underlying contamination had been excavated. Site managers now expect the project to be completed by the end of the calendar year.



Board to Sponsor EMSSAB Chairs Meeting

From March 27 to March 29, the Rocky Flats Citizens Advisory Board will host the semi-annual meeting of the Environmental Management Site Specific Advisory Board (EMSSAB) chairs. The EMSSAB is the collection of local advisory boards at Department of Energy sites across the country. The meeting will be held at the Adam's Mark Hotel in downtown Denver.

The meeting will begin with a tour of the Rocky Flats site. On the tour, the participants will visit at least one former plutonium production building to view firsthand the progress of decontamination and decommissioning work. They also will visit the transuranic waste loading facility and drive by some of the major environmental restoration projects. Representatives from the U.S. Fish and Wildlife Service also will speak to the

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Natural Resource Management Issues

Chronic Wasting Disease and Rocky Flats

Testing of 28 deer taken from Rocky Flats shows no Chronic Wasting Disease in the animals. But an analysis to show whether the deer have detectable levels of radioactive materials in organs and tissues will have to wait for now.

Mark Sattelberg of the U.S. Fish and Wildlife Service said his agency took samples of lung, liver, kidney, muscle, and bone from 26 of the deer and put them in a deep freezer at Rocky Mountain Arsenal National Wildlife Refuge. However, Mark

said the Service currently does not have the money to test the samples. It would cost about \$1,200 to test each organ or tissue sample for actinides.

Mark said if the Service decides to allow hunting on the future Rocky Flats National Wildlife Refuge, then it would probably do the sampling. But if it does not allow hunting, the deer samples may not be tested.

Cliff Franklin at the Department of Energy-Rocky Flats Field Office said 26 of the deer were taken from the site on December 8 by the state Division of Wildlife. Those 26 and two roadkill deer tested negative for Chronic Wasting Disease. The state wildlife division will continue to take deer from the site every few years to test for the disease, Cliff said.

According to the Division of Wildlife web site, Chronic Wasting Disease is a fatal neurological disease found in deer and elk. The disease attacks the brains of the animals, causing them to become emaciated, display abnormal behavior, lose bodily functions, and die. Federal and state disease special-



A resident herd of deer photographed at the Rocky Flats site. So far, the deer living at the site appear to have been unaffected by Chronic Wasting Disease.

ists have found no link between wasting disease and any neurological disease in humans.

So far, Chronic Wasting Disease has been found primarily in wild deer and elk herds in northeastern Colorado, although smaller numbers of infected deer have been found in other areas of the state. The disease has also been found in both wild

and farmed herds in Wyoming, Nebraska, Wisconsin, South Dakota, New Mexico, Montana, Oklahoma, Kansas, and Illinois, as well as two Canadian provinces.

Health officials and the Division of Wildlife advise hunters not to consume meat from infected animals.



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these concerns is the timeframe over which the agencies are evaluating the tradeoff between surface and subsurface remediation. In the near term, placing a priority on surface soil remediation may make sense. However, given the fact that plutonium left in the environment remains hazardous for a quarter million years, the Board believes DOE must consider the life-cycle costs of managing residual subsurface contamination, and compare those costs to that of doing a complete cleanup today. It may be that by focusing on near-term cost savings, DOE is passing on a much larger bill to future generations.

Along those lines, the Board requested that DOE provide estimates of the cost of cleaning up surface *and* subsurface soil to a 10^{-6} level. Cleanup to this degree would mean future users of the site would have no more than one in a million chance of developing cancer as a result of residual contamination. If the tradeoff outlined in the proposal ultimately results in a cost savings to the federal government, the Board believes DOE should apply its share of that savings toward more environmental remediation at Rocky Flats. For each individual cleanup project, DOE should evaluate whether cleanup to background can be achieved. Next, DOE should assess the feasibility of cleanup to a 10^{-6} risk level, and provide justification whenever this level proves not to be obtainable.

Having expressed its concerns about the proposed strategy of doing greater surface remediation at the expense of subsurface remediation, the Board went on to recommend specific changes to the proposal. Below are some of the key changes recommended by RFCAB:

Surface Soil Remediation

The proposal calls for remediating any plutonium and americium above the cleanup levels to a depth of three feet. RFCAB recommended such remediation be done to a depth of at least six feet, unless an alternate cleanup level were established in the three to six foot layer in consultation with stakeholders and the regulators. RFCAB recommended this be done for uranium as well.

Subsurface Contamination

For plutonium and americium contamination in the three-to-six-foot layer, the proposal calls for a point-

source limit of 10 nanocuries per gram. Such contamination in an area greater than 80 square meters would be limited to three nanocuries per gram of soil. The proposal set no limits on contamination deeper than six feet. RFCAB finds these limits unacceptable and recommended that DOE work with stakeholders and regulators to establish a limit on subsurface contamination that would apply regardless of depth.

The proposal also calls for removal of just a fraction of the old process waste lines. RFCAB recommended all old process waste lines be removed. If this proves not to be achievable, RFCAB urged DOE to place a priority on removing those lines associated with the plutonium buildings and in areas subject to landslide or erosion.

Surface Water

The proposal would change the way regulatory compliance is measured for radiological contaminants in surface water onsite. Whereas compliance is currently measured according to a rolling 30-day average of flow, the proposal calls for a 12-month averaging period. Regulatory compliance for water leaving the site would still be assessed over a 30-day averaging period. RFCAB expressed concern that such a change might reduce DOE's vigilance about maintaining water quality onsite. RFCAB recommended a series of monitoring objectives be developed to identify onsite water quality problems in a timely manner and trigger an action prior to degradation of surface water offsite.

Finally, despite the fact that the proposal does not address stewardship considerations directly, it nevertheless relies heavily on long-term stewardship owing to the prospect of leaving long-lived contaminants in the subsurface. The Board expressed, among other concerns, the need for stable funding and enforceability mechanisms related to stewardship.

For the full text of this recommendation, please visit our website at:

www.rfcab.org/Recommendations/2003-1.htm

Rocky Flats Long-Term Stewardship Strategy in the Works

Stewardship – the word evokes an old-fashioned, biblical image of a steward tending the land or a flock of sheep. At Rocky Flats, the idea of stewardship has been brought into the nuclear age but has not lost its meaning of safeguarding. The dilemma is to construct a program that may have to endure for thousands of years over the lifetime of the contamination.

The site's Long-Term Stewardship Strategy, now in draft form, is designed to protect human health and the environment from the hazardous and radioactive remains of nuclear weapons production. It establishes policies and rules to prevent this contamination from migrating into the air, surface water, and groundwater and provides a blueprint for the site to follow when developing its program for long-term stewardship. John Rampe, Director of Communications and Stewardship at the Department of Energy's Rocky Flats Field Office, who is writing the Strategy, says he expects to send it to DOE-Headquarters in

Washington, D.C., by the end of February. Many community members who have written comments on the Strategy agree it is a strong statement of how the site intends to institute post-closure management.

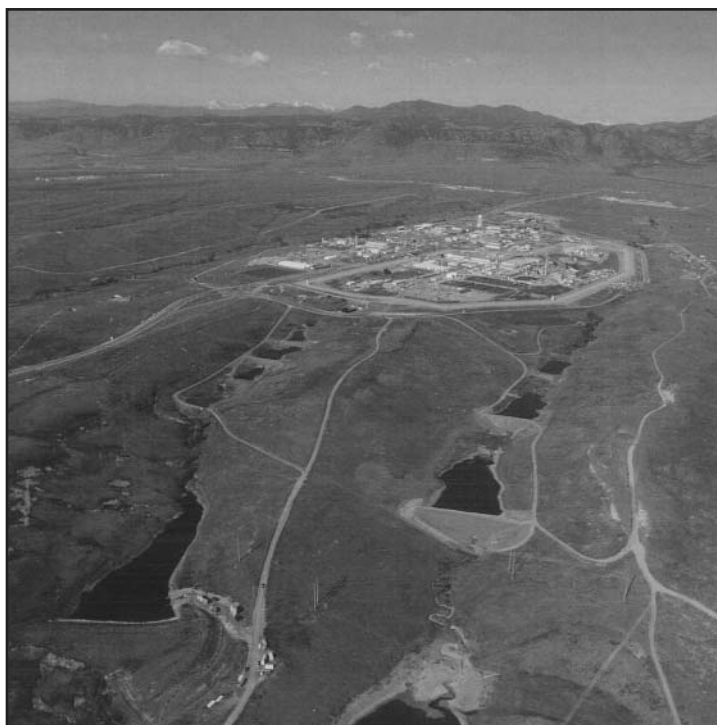
The Strategy comes in two parts. Part One is an overview of general policies and definitions of stewardship activities – institutional, physical, and engineered controls; monitoring and maintenance of both the contamination and the controls; information management; and contingency planning and emergency

response. It also discusses the potential end-state environment and conditions and the impacts those have on long-term stewardship activities.

Part Two talks about the enforceability of long-term stewardship, i.e. the types of controls that may be enforceable. It also discusses specific areas of the site, such as the Solar Ponds Plume Treatment System and the Original and Present Landfills, and presents a list of the types and extent of controls that may be used in these areas.

Part Two details the goals of and plan for a records and information management system so that future site stewards can access information on Rocky Flats. In this section also are chapters on funding for long-term stewardship activities, public involvement during long-term stewardship, and natural resources, cultural resources and historic preservation.

In future newsletters, we will explain more about stewardship activities and how they are meant to protect you and the communities surrounding Rocky Flats.



Shown above is an aerial photograph of Rocky Flats looking toward the mountains of the Front Range. Stewardship activities at Rocky Flats will mostly take place within the Industrial Area, which was the portion of Rocky Flats primarily devoted to weapons production.

Site Specific Advisory Board Representatives Meet to Discuss Transuranic Waste



In the photo above, a truck carrying transuranic waste is shown after arriving to dispose waste at the Waste Isolation Pilot Plant (WIPP) facility located in Carlsbad, New Mexico.

From January 30 to February 1, representatives from the nine Department of Energy sites that make up the Environmental Management Site Specific Advisory Board (EMSSAB) met in Carlsbad, New Mexico to learn about and discuss transuranic waste issues. Carlsbad is home to the Waste Isolation Pilot Plant (WIPP), the national underground disposal site for transuranic waste that was generated during the production of nuclear weapons.

The WIPP facility opened in 1999 and recently received waste shipment number 1,500. A large portion of the waste received so far at WIPP has come from Rocky Flats. The transuranic waste disposed at WIPP consists mainly of tools, pieces of equipment, clothing, and other items that were contaminated with plutonium during weapons production operations. Rocky Flats already has sent more than 5,000 cubic meters of waste to WIPP and is expected to send 8,000 more cubic meters by the time the site is cleaned up in 2006. A fleet of 33 semi-trucks conveys transuranic waste from the respective generator sites to WIPP. During the trip, the radioactive waste is ensconced in large cylinders designed to withstand the impact of a traffic accident.

The EMSSAB meeting began with a day-long tour of the WIPP site. Participants visited both the above and below-ground facilities. The above-ground facilities include a large waste handling facility where the containers carrying waste from sites across the country are unloaded and prepared for transport below ground. Although not currently doing so, WIPP will one day use special rooms and robotic equipment to accept wastes with higher levels of radioactive contamination that cannot be handled directly by humans.

To reach the actual disposal location, tour participants took the five-minute elevator trip descending 2,150 feet below the surface. Below ground, the waste is placed in large rooms that have been carved out of rock salt. The ceilings, walls and floors of the rooms will one day close in on the wastes, sealing them in.

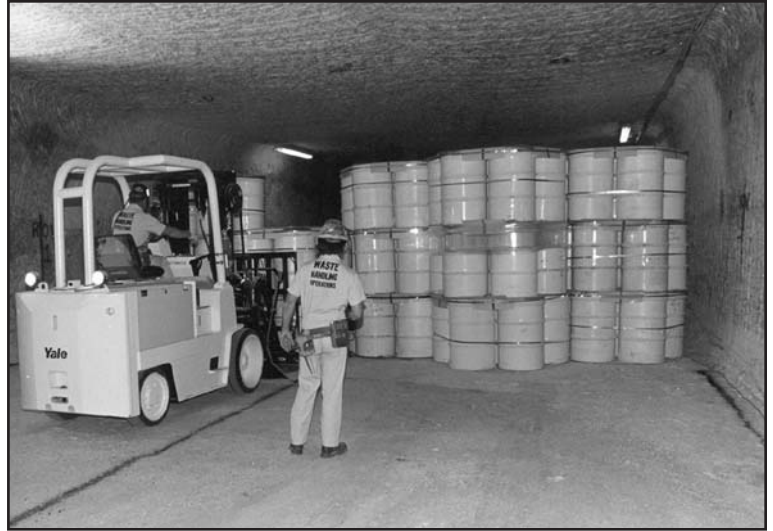
Following the tour of the WIPP facility, the advisory board participants met for a day and a half of meetings to learn about and discuss issues related to transuranic waste. The meeting was designed to enable the participants to share concerns and then develop recommendations to forward to the Department of Energy. To develop the recommendations, the participants divided into topic-oriented breakout sessions. The topics for the breakout sessions included regulatory and outreach issues such as WIPP certification, state permitting, and stakeholder involvement; transportation issues such as trucks and shipping containers, shipping and receiving, and emergency preparedness and response; waste characterization, treatment and packaging issues; and management issues that included the national transuranic waste program strategy, the Performance Management Plan, priorities and scheduling, and costs.

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Site Specific Advisory Board Representatives Meet to Discuss Transuranic Waste (continued from page 6)

A total of nine separate draft recommendation statements were developed during the meeting. These draft recommendations will be sent back to the individual local boards comprising the EMSSAB for review and approval. Once each of the local boards has voted on the recommendations, they will be forwarded to the Department of Energy in Washington, D.C.

Eight representatives from Rocky Flats attended the meeting. They included advisory board members Dave Davia, Shirley Garcia, Victor Holm, and Andrew Ross; staff members Jerry Henderson and Ken Korkia; Lam Xuan with the waste management program at Rocky Flats; and Nancy Newell with the Colorado Department of Public Health and Environment.



A forklift operator loads a group of barrels carrying transuranic waste for permanent disposal in the underground mine at WIPP.

News Briefs and Updates (continued from page 2)

group about the development of the National Wildlife Refuge at Rocky Flats.

In the business portion of their meeting, the group will discuss the intersite shipment of waste and other materials. They also will hear a presentation about the Department of Energy Environmental Management Program's budget for 2003 and 2004. Another presentation will be on the creation of the proposed Office of Legacy Management that will assume long-term stewardship responsibilities for DOE sites once cleanup is complete. Many DOE sites

will not be completely cleaned, so stewardship activities will be necessary to monitor contaminants, maintain remedies and provide information about contamination to future generations. The group also will have a discussion with the newly appointed federal officer, Sandra Waisley, who has oversight of the EMSSAB.

Details about the EMSSAB Chairs Meeting can be found at the Rocky Flats Citizens Advisory Board's website at www.rfcab.org. A link will take you directly to the chairs meeting information.

RFCAB MISSION STATEMENT

The Rocky Flats Citizens Advisory Board, a nonpartisan, broadly representative, independent advisory board with concerns related to Rocky Flats activities, is dedicated to providing informed recommendations and advice to the agencies (Department of Energy, Colorado Department of Public Health and Environment, and the Environmental Protection Agency), government entities, and other interested parties on policy and technical issues and decisions related to cleanup, waste management, and associated activities. The Board is dedicated to public involvement, awareness and education on Rocky Flats issues.



RFCAB Web site: www.rfcab.org

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Rocky Flats Public Meeting Calendar

April

3	Rocky Flats Citizens Advisory Board Meeting	6 to 9:30 p.m.	Jeffco Airport
7	Rocky Flats Coalition of Local Governments	8:30 to 11:30 a.m.	Jeffco Airport
8	RFCAB Closure Projects Committee	6 to 8 p.m.	RFCAB office
17	Wildlife Refuge Technical Review Group	6 to 8 p.m.	College Hill Library
24	Stewardship Working Group	3:30 to 5:30 p.m.	Arvada City Hall

May

1	Rocky Flats Citizens Advisory Board Meeting	6 to 9:30 p.m.	Jeffco Airport
5	Rocky Flats Coalition of Local Governments	8:30 to 11:30 a.m.	Jeffco Airport
6	RFCAB Closure Projects Committee	6 to 8 p.m.	RFCAB office
15	Wildlife Refuge Technical Review Group	6 to 8 p.m.	College Hill Library
22	Stewardship Working Group	3:30 to 5:30 p.m.	Arvada City Hall

June

2	Rocky Flats Coalition of Local Governments	8:30 to 11:30 a.m.	Jeffco Airport
5	Rocky Flats Citizens Advisory Board Meeting	6 to 9:30 p.m.	Jeffco Airport
10	RFCAB Closure Projects Committee	6 to 8 p.m.	RFCAB office
19	Wildlife Refuge Technical Review Group	6 to 8 p.m.	College Hill Library
26	Stewardship Working Group	3:30 to 5:30 p.m.	Arvada City Hall

ALL MEETINGS ARE SUBJECT TO CHANGE, PLEASE CALL BEFORE YOU GO: 303-420-7855

**Arvada City Hall, 8101 Ralston Road, Arvada
College Hill Library, 3705 West 112th Avenue, Westminister
Jefferson County Airport Terminal Building (Mount Evans Room), 11755 Airport Way, Broomfield
RFCAB office, 9035 North Wadsworth Parkway, Suite 2250, Westminister**

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