AlphaTRAC
Meeting the Challenge of the Atmosphere

November 28, 2001

Dear Stakeholder:

The Rocky Flats Cleanup Agreement (RFCA) Stakeholder Focus Group will meet at the Broomfield Municipal Center at One DesCombes Drive on November 28, 2001 from 3:30 to 6:30 p.m.

The agenda for the November 28, 2001 meeting is enclosed (Attachment A). We will discuss the following topics:

- Task 3 Peer Review and Wind Tunnel Technical Review – update
- Facilitator's Report on Focus Group – Interests and Path Forward
- Focus Group Discussion and Decision – Focus Group Role, Path Forward and Topics
- Focus Group Discussion and Decision – Focus Group Role, Path Forward and Topics (Cont.)
- Cleanup Priorities – Group Identification of Options
- Identify topic(s) for next meeting, information needed from Agencies and homework for Focus Group Members

The handouts from the November 14, 2001 RFCA Focus Group meeting are enclosed as Attachment B, including:

- 11/15/01 RSALs Working Group notes,
- Memorandum: to Jessie Roberson from Energy Communities Alliance Dated November 7, 2001, regarding long-term stewardship; and
- Presentation to Meeting on Soil Action Level, Joe Goldfield, dated October 30, 2001.

Attachment C is the first Wind Tunnel Peer Review.

If you need additional information to prepare you for the Focus Group discussion on November 28, 2001, please contact Christine Bennett of AlphaTRAC, Inc. at 303 428-5670 (cbennett @alphatrac.com). Christine will help to find the appropriate resource for you.

You may call either Christine or me if you have any questions, comments, or suggestions concerning the RFCA Stakeholder Focus Group or the upcoming meeting.

Sincerely,

C Reed Hodgin /cb

C. Reed Hodgin, CCM
Facilitator / Process Manager

1/15

SW-A-004425

AlphaTRAC, Inc. Sheridan Park 8, Suite 120 8670 Wolff Court Westminster, CO 80031-3692 303 428-5670 Fax 303 428-8930 info@alphatrac.com

RFCA Stakeholder Focus Group
Attachment A

Title:	Agenda for November 28, 2001 Focus Group Meeting
Date:	November 28, 2001
Author:	C. Reed Hodgin AlphaTRAC, Inc.
Phone Number:	(303) 428-5670
Email Address:	cbennett@alphatrac.com

2

RFCA Stakeholder Focus Group
Meeting Agenda

When: **November 28, 2001 3:30 - 6:30 p.m.**

Where: **Broomfield Municipal Hall, Bal Swan and Zang's Spur Rooms**

3:30-3:40	Ground Rules, Agenda Review, Objectives for this Meeting
3:40-4:00	Task 3 Peer Review and Wind Tunnel Technical Review - update
4:00-4:30	Facilitator's Report on Focus Group - Interests and Path Forward
4:30-5:00	Focus Group Discussion and Decision - Focus Group Role, Path Forward and Topics
5:00-5:10	Break
5:10-5:30	Focus Group Discussion and Decision - Focus Group Role, Path Forward and Topics (Cont.)
5:30-5:45	Cleanup Priorities - Group Identification of Options
5:45-5:55	Identify topic(s) for next meeting, information needed from Agencies and homework for Focus Group Members
5:55-6:00	Review Meeting
6:00	Adjourn

3

RFCA Stakeholder Focus Group
Attachment B

Title:	Handouts at the November 14, 2001 RFCA Stakeholder Focus Group Meeting, including: • 11/15/01 RSALs Working Group notes, • Memorandum: to Jessie Roberson from Energy Communities Alliance Dated November 7, 2001, regarding long-term stewardship; and • Presentation to Meeting on Soil Action Level, Joe Goldfield, dated October 30, 2001.
Date:	November 27, 2001
Authors:	Various
Phone Number:	(303) 428-5670
Email Address:	cbennett@alphatrac.com

4

NOTES FROM RSALs WORKING GROUP MEETING ON 11/15/01

ITEMS COVERED ON 11/15:

1. Plans for uranium calculations

ACTIONS

Action Item	Who	When	Notes
Go through parameter list to determine which values should be different from the Pu/Am calculations.	J. Benetti & B. Nininger	11/29/01	Perform rural resident sensitivity analysis, as necessary, to assist in this action.
Perform dose & risk calculations for uranium for surface RSALs.	Working Group		After parameters are finalized.

DECISIONS

1. Current objective is to calculate dose and risk surface RSALs for uranium.
2. For the current uranium calculations, the scenarios, site conceptual models, and pathways are the same as those used for the plutonium/americium calculations. As with the plutonium/americium calculations, the groundwater pathway will **NOT** be used for the uranium calculations.

NEXT MEETING: THURSDAY, 11/29/01, 8:30 a.m., at EPA CONFERENCE CENTER

Agenda Items:

1. Discuss parameters for uranium calculations.
2. Go through action item table.

Energy
Communities Alliance
Local Concerns. National Impact.

1101 Connecticut Ave., N.W.
Suite 1000
Washington, DC 20036-4374
202 828-2317 telephone
202 828-2488 fax
www.energyca.org

November 7, 2001

Honorable Jessie Roberson
Assistant Secretary for Environmental Management
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Assistant Secretary ~~Roberson~~ Jessie:

I am writing to express Energy Communities Alliance (ECA's) support for your recent memorandum dated October 26, 2001 to Mr. David Geiser entitled: "Next Steps for Long-Term Stewardship". ECA agrees that clarifying the purpose of the long-term stewardship program and the roles and responsibilities for management of long-term stewardship within the Department at headquarters and the field is critical to the success of the Department's cleanup program. Your plan to consolidate the long-term stewardship program and policy at headquarters is an important first step. Many local communities were previously confused with what office around the country led the program.

Defining the executive steering committee's goals to develop a strategic plan for the Department's long-term stewardship effort and shrinking the size of the committee to a level in which the committee can actually get work done in an efficient manner is also something that we believe is important. Further, the draft Seven Long-Term Stewardship Management Principles are a good beginning for the committee's discussions.

Involving national groups and local communities especially local governments into the decision-making process is critical for the future of long-term stewardship. ECA looks forward to continuing to work closely with EM.

ECA's long-term stewardship policies, which are attached, set forth ECA's ideas for ensuring that sites are cleaned up in a manner that will be protective for the long term. Further, the policies define and set forth a role for local governments at the different sites.

Your explicit statements on long-term stewardship are critical to the success of the program. Also key to the program's success will be ensuring that all field managers and their staff begin to implement long-term stewardship practices and the key principles that you identified. Further, we will need to ensure that NNSA and other DOE departments support and participate in EM's long-term stewardship program.

03-67867.01

6

ENVIRONMENTAL REMEDIATION AND LONG-TERM STEWARDSHIP

1. BACKGROUND

Local governments are asset holders for their communities—they are charged with specific legal mandates under state and federal laws and serve as stewards of public resources such as land and revenue, including land use planning and control. Most local governments are interested in working and having a substantive role along with the federal government, agencies and state governments, in long-term stewardship issues to protect the human health, welfare and the environment in their communities.

2. ISSUES

The Department of Energy (DOE) is increasingly relying upon long-term stewardship (LTS) as a substitute for complete remediation of contaminated sites due to lack of effective technologies and insufficient funds.

Contamination will remain at approximately 109 DOE sites at levels that will preclude unrestricted use of land, surface and groundwater in order to maintain adequate protection to human health and the environment for 100 years, 10,000 years and even longer at some sites.

Of particular concern to local governments is the lack of evidence that land use controls, institutional controls and other stewardship measures are reliable and enforceable in perpetuity. The lack of identified parties responsible for stewardship implementation and a comprehensive system to identify, track and store cleanup records and the adequacy of funding for long-term stewardship are significant related concerns.

Even though they may be r elied upon to implement LTS, local governments are not provided with a formal role and are not permitted to participate in the formal environmental remediation decisions at DOE sites in, or adjacent to, their communities.

DOE has no formal, national or site level LTS policies or implementation plans. DOE must address implementation, notice, enforceability and funding of LTS before local communities can rely upon LTS as part of environmental remedy.

3. RECOMMENDATIONS

3.1.1 Local governments must have a formal role in the remedy decision-making process, especially where they will be relied upon to implement the remedy.

3.7 Technological Advances:

The federal government must implement a systematic process for reevaluating and modifying cleanup end states to ensure that developments in science, technology and other knowledge that becomes available are incorporated into long-term stewardship strategies.

3.8 Recordkeeping:

The success of long-term stewardship activities requires a record management facility at or near the location of the stewardship activities that is accessible to the community and compatible with the local government's recordkeeping system. National or regional records management facilities will also be required to maintain duplicate records as failsafe measures.

PRESENTATION TO MEETING ON SOIL ACTION LEVEL

Joe Goldfield, PE, DEE (October 30, 2001)

Introduction

For many years the permissible lifetime body burden of plutonium for a worker at an atomic plant has been 0.04 μCi (microcuries) of plutonium (equivalent to 0.6 μg --micrograms of plutonium). The soil at Rocky Flats is contaminated with kilogram quantities of plutonium. Each kilogram can supply almost two billion lifetime body burdens

Short History of SAL's

The citizens of this area have been struggling with the safe level of plutonium contamination that can remain in the soil since mid-1996, when the local authorities made numerous presentations espousing the soil action levels that they recommended for cleanup.

One of the reasons that the clean up of plutonium was so necessary was the fact that plutonium with a half life of 24,000 years remained toxic for thousands of human generations--time frames which we had never dealt with before.

After a considerable learning curve, we concluded:

1. The process for calculating safe, soil action levels was replete with estimates and assumptions that were not very precisely known. For example, changing some key assumptions could produce very large changes in the calculations of safe action levels.

2. Some of the cleanup levels recommended were based on health exposures (85 mrem) that correlated with risk factors that were many times higher than acceptable.

3. Most disturbing we found a number of instances of soil cleanup levels at other facilities that were far lower than those proposed for Rocky Flats.

I have written a report on these findings that I am submitting with my comments.

We, the citizens of the community were so disturbed that we set up a committee called (RFSALOP) Rocky Flats Soil Action Level Oversight Panel. We obtained funds from the DOE, went out for bids with a complete specification of the study needed and hired the most (in our opinion) qualified contractor to make a study of SAL's and make a recommendation of the SAL that they deemed appropriate. After a year and one half of concentrated effort, closely followed by our committee and by a panel of peer reviewers, they concluded with a recommendation that the soil action level should be 35 pCi/g (picocuries of plutonium per gram of soil).

We are proud of this effort. It was, in our opinion, a far more credible technical effort than that produced by the regulators and much more in line with Soil Action Levels developed by other locations.

The main criticism I have of this effort is that we set a restriction on the work of RAC, pursuant to a restriction imposed by the regulators that they could not change the allowable health effect from the level set by the regulators of 15mrem. It was not till the end of the study that we found that the 15mrem health effect corresponded to a Risk Factor of over 3 or 4 cancers per 10,000 people, rather than 1 in 100,000 or 1 in a million that I am sure our committee would have preferred. The RAC result is higher than desired and probably should be reduced to 10 or less.

Since the RAC SAL

The final report of the RAC study was issued in February of 2000. The regulators never accepted the RAC results, but they never explained why. It is now a year and one half since the RFSALOP completed its work. Since that time the local regulators have implemented a complete new process to develop soil action levels. A report recently issued shows the results of their calculations based on various land use scenarios and levels of allowable health dosage. The soil action levels range from 2 pCi/g to 11797 pCi/g--a difference of 6000-fold. They say they need guidance based on policy decisions to come to a conclusion. I dont have time to go into detail on all these matters. However, for one example, can we guarantee that any restriction, that we place on land use, will outlive the institutional memory of one generation (20 years), or five generations (one hundred years)? We have no reason to believe that the technical expertise applied to this new study approaches that of the RAC study.

RFCA Stakeholder Focus Group
Attachment C

Title:	1st Wind Tunnel Peer Review
Date:	November 28, 2001
Phone Number:	(303) 428-5670
Email Address:	cbennett@alphatrac.com

11

Review

Task A:
Evaluate the appropriateness of the wind tunnel technology used in studies at Rocky Flats for developing wind resuspension values to be used in establishing Radioactive Soil Action Levels at Rocky Flats.

This review section is divided into two broad areas.

First, consider some issues that were not well- represented in the wind tunnel test data and reported analyses.

In typical wind erosion events, a portion of the moving soil is between about 100 and 600 microns (0.1 - 0.6 mm) in diameter and saltates (hops) along the ground surface. Particles smaller than 100 microns will be mostly suspended in the airstream and not provide significant impact energy to breakdown the immobile surface. Saltating particles, often sand grains, abrade the downwind clods and crust and break them down into a range of mobile particle sizes including PM-10. On many eroding agricultural fields or on a dry lake bed. such as Owen's Lake in California, this mechanism is often the single largest source of PM-10 particles. At Rocky Flats, the surface is variable, and saltating particles, if present, will likely be trapped before the saltation load increases to the full transport capacity of the wind.

Nevertheless, a key question is how much saltation-size soil and burn debris of similar size were mobile and would move downwind and generate additional PM-10 by breakage of the moving material and abrasion of the down wind surface at high wind speeds? The tunnel test results do not report threshold velocities for coarse particles nor measurements of the amount of these particles and burn debris removed during testing.

The implicit assumption in the wind tunnel test protocol was that incoming saltating soil and debris particles would be absent, and only wind would affect the test surface during a wind storm.

The selection process for the test plots was not described, but there is considerable scatter among plots in the potential erosion data. It is also not clear how well the selected tunnel test plots might represent the contaminated areas that will be subjected to fires. Additional measurements to characterize the soil and vegetation conditions at the test sites would have been useful for interpreting the wide variability in the test results and estimating applicability of the test site data to comparable contaminated areas. The implicit assumption in the test data is that the tested surfaces are also representative of the contaminated surfaces.

Second, consider the wind tunnel test equipment and procedures.

The test wind tunnels are probably too small in cross-section and too short in length to accurately simulate atmospheric boundary layer flow over a significant portion of the test section on the rough, test surfaces at Rocky Flats. A partial explanation is that there is a smooth-to-rough transition region of the flow as it moves from the smooth tunnel entrance section over the rough test surface in the working section. Second, some of the roughness elements were large, relative to the tunnel size, thus creating blockage effects. At the test wind speeds, the air flow behaves as an incompressible fluid so the average flow accelerates in the tunnel cross-sections with blockage. There are also edge effects where the tunnel sides meet the uneven ground surface. Thus, close to tunnel walls atmospheric flow is not correctly simulated.

Unfortunately, neither the measurement heights nor the measured values for the wind speed profiles were reported in the data. However, the practical result of the scaling problems cited above mean that the aerodynamic roughness and friction velocity values obtained from the wind speed profiles in the tunnel should be regarded only as rough estimates. As a consequence, the atmospheric wind speeds at the10 m height calculated from these values also should be considered only as rough estimates.

To increase accuracy of tunnel estimates it would have been useful to have a cyclone pre-separator on the ambient PM-10 filter to avoid estimating the fraction of PM-10 that it collected. This value is critical since it is used to correct the unburned PM-10 potential that is ultimately used as a denominator in calculating the ratios for post-fire potential erosion.

Another difference between the wind tunnel and atmospheric winds, is that the latter vary in the wind direction about the mean direction. The directional fluctuations during a storm would likely increase total PM-10 discharge a few percent above that measured from the straight winds in the wind tunnel.

In summary, it appears more PM-10 than measured would likely be generated under rare high wind speeds by including abrasion effects from moving soil and debris. However, from the photos the soil surface does appear to be a 'limited source' and relatively stable, so under low to moderate wind speeds which occur the major fraction of the time, the assumed absence of saltation should be valid.

Because the soil is a 'limited source' some period of time may be needed between wind events to replenish the loose particles through weathering, deposition, or disturbance processes. The 'limited source' concept means that when considering potential emissions on successive days following a wind storm, the present tunnel results would tend to overestimate the PM-10 available for resuspension.

Despite the scaling problems in simulating the atmospheric flow, the wind tunnel PM-10 measurement protocol provided wind speeds that were large enough to sweep most of the loose PM-10 particles from the test surface. Hence, the wind tunnel tests should provide reasonable estimates of the available, loose PM-10 on surface areas that do not have saltating aggregates incoming from upwind .

Task B:
Evaluate if the wind tunnel results are being properly used in developing input values for application in the selected dose (RESRAD) and risk (RAGS) models for establishing Radioactive Soil Action Levels at Rocky Flats.

The post-fire erosion potential multiplier for the spring fire appears to be a reasonable application of the measured wind tunnel results. This is partly true, because precipitation events near the burn event are more frequent than at other seasons.

The post-fire erosion potential multiplier for the fall fire is estimated without a clear basis. The true erosion potential likely depends the interaction of weather and soil conditions, as well as breakdown of the burn debris and plant recovery rates in the spring. Without adequate plant cover, the burn debris will breakdown and move, but the fraction that becomes PM10 is unclear. Bare soils of various textures can become highly erodible during the winter if subjected to wetting and then drying while frozen. However, if the soil generally has significant rock cover, so it remains a 'limited source' then the fall-fire potential erosion multipliers also appear reasonable.

The estimated multipliers shows fall fire raises the erosion potential for 24 months. It is not clear that the second 12 months was counted in the frequency distribution matrix TABLE IV- 5 page 45.

While the estimates for annual erosion multipliers appear reasonable for use in RESRAD and RAGS, the submitted material is difficult to evaluate because of the absence of information about topography, soil texture, surface roughness, rock cover, etc. High wind speeds have a great capacity to move erodible soil, so the status of the surface when high winds occur is the major control factor. To illustrate the effect of high wind speeds after a fire on a sandy soil that is not a 'limited source', see the attached photo taken in southwest Kansas in 1996. The photo illustrates a soil loss of 2 to 3 inches removed by the same high speed wind storm that drove the fire across the range.

If there are contaminated areas that could act as unlimited source areas during high wind speeds, the rarity of these events would not greatly impact the annual values of PM-10 used in RESRAD. Nevertheless, such wind events could act to greatly expand the area of contaminated surfaces at Rocky Flats. As a result, the PM-10 resuspended at later times would likely contain higher concentrations of contaminated soil than at present. Hence, it would seem important to identify, stabilize, and restrict activity on those portions of the contaminated areas that might become highly erodible, if the vegetation were removed. Such measures would help to insure that the assumptions such as 'limited sources' made in developing the RSAL remain valid.

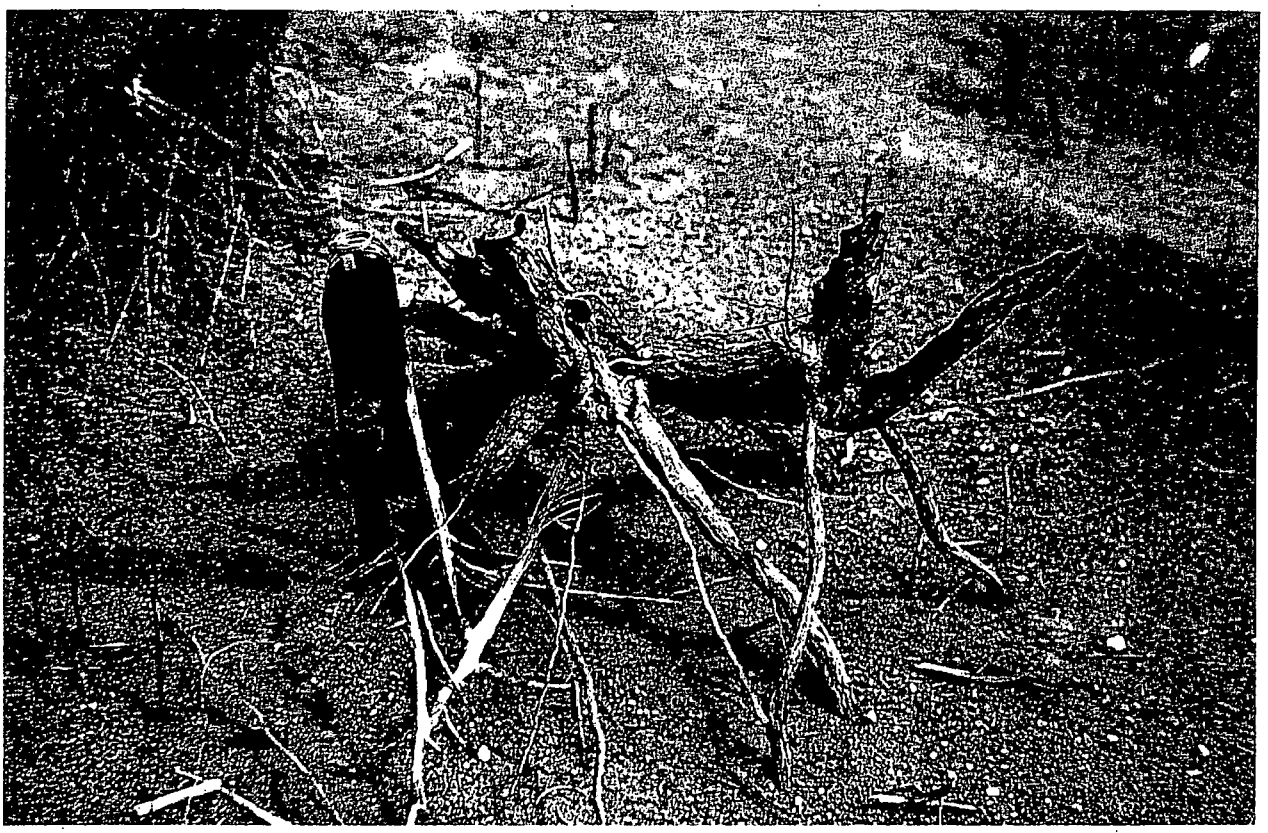

Photo illustrating roots exposed by wind erosion on burned rangeland in Meade County, KS , 1996. Photo source E.L. Skidmore, USDA, ARS.