

NOTICE:

“BEST AVAILABLE COPY”

**PORTIONS OF THE FOLLOWING
DOCUMENT ARE ILLEGIBLE**

The Administrative Record Staff

February 21 2001

Dear Stakeholder

The Rocky Flats Cleanup Agreement (RFCA) Stakeholder Focus Group will meet at the **Arvada City Hall 8101 Ralston Road Anne Campbell Room** on February 28 2001 from 3 30 to 6 30 p m

The agenda for the February 28 2001 meeting is enclosed (Attachment A) We will discuss the following topics

ALARA Presentation and Discussion - Historical Perspective and Application To Rocky Flats Cleanup
RFCA Stakeholder Focus Group meeting process

The meeting minutes for the February 14 2001 meeting are enclosed as Attachment B

Please think about the focus group process and be prepared to discuss how we can move forward collaboratively to support a successful cleanup of Rocky Flats

The latest agencies schedule for the RSALs review is also enclosed as Attachment C

If you need additional information to prepare you for the Focus Group discussion on February 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 Hodgins CCM
Facilitator / Process Manager



DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

1/62

ADMIN RECORD

SW A-004344

RFCA STAKEHOLDER FOCUS GROUP MEETING AGENDA

When February 28, 2001 3 30 - 6 30 p m

Where Anne Campbell Room, Arvada City Hall

3 30 3 40 Ground Rules Introductions Agenda Review 2/14/01
Meeting Minutes Review

3 40 4 40 ALARA Presentation and Discussion - Historical Perspective
and Application To Rocky Flats Cleanup

4 40 4 50 Break

4 50 6 10 RFCA Focus Group Meeting Process Discussion

6 10 6 20 RSAL Review Schedule

6 20 6 30 Set Future Agendas and Review Meeting

6 30 Adjourn

**RFCA Stakeholder Focus Group
February 14, 2001
Meeting Minutes**

INTRODUCTION AND ADMINISTRATIVE

A participants list for the February 14 2001 Rocky Flats Cleanup Agreement (RFCA) Stakeholder Focus Group meeting is included in this report as Appendix A

Reed Hodgkin of AlphaTRAC Inc meeting facilitator reviewed the purpose of the RFCA Focus Group Introductions were made

Reed asked the Focus Group if there were any changes or additions / corrections to the January 31 2001 meeting minutes One correction was noted

The Summary of Actions did not include the addition of exposure of children to the land use scenarios being modeled for Radioactive Soil Action Level (RSAL) evaluation

Reed reviewed the meeting agenda which included

Regulatory Analysis Report Revision 2 - Discussion
RSAL Peer Review Update and Discussion
Review of RESRAD 6.0 approach to air pathway
Report back from Workshop Design Group

Tom Marshall raised a process issue addressed in an email forwarded to the group on the day of the meeting He indicated that there appeared to be a disconnect between the community and the RFCA agencies concerning the collaborative effort of the Focus Group He suggested that the Focus Group hold a discussion about its goal and its process for meeting that goal The purpose of the discussion would be to make sure that the Focus Group would be successful at the end of its process

A significant number of the attendees agreed that the discussion would be beneficial Reed asked the group to schedule the discussion at agenda setting time

REGULATORY ANALYSIS REPORT, REVISION 2, DISCUSSION

Tim Rehder U.S. Environmental Protection Agency (EPA) briefed the Focus Group on the key differences between the first draft and the second draft of the Regulatory Analysis Report (Appendix B) His key points were

Important Points in 2nd Draft

NRC Rule is a Relevant and Appropriate Requirement

- So 25 mRem/yr dose requirement must be met
- ALARA Analysis will be required for each project
- There is a preference for unrestricted use

If 25 mRem/yr is not within the risk range the RSAL will be based on a value within the Range

Draft 2 RSAL/Cleanup Level Proposal (surface soil)

RSAL will be based on the anticipated future user (wildlife refuge worker)

When an action is triggered (contam > RSAL) ALARA analysis will be performed to determine if cleanup can be achieved that will support unrestricted use

Tim emphasized that the report states that the RSAL will be based on a future anticipated user. The RFCA Agencies believe that the most anticipated user is a wildlife refuge worker. When the RSAL is triggered for a specific cleanup, a project specific ALARA analysis will be conducted to see if it's possible to get to a level of unrestricted use. Tim noted that the draft report proposes a suburban resident land user as the unrestricted use scenario. The Agencies have decided since publication of the report to use a rural resident land user to represent unrestricted use. The primary reason for the change is that the suburban resident scenario takes credit for blue grass ground cover while the rural resident scenario does not. The rural resident would also have a larger lot that could potentially support some animals. The agencies plan to proceed using the RESRAD computer model to calculate soil concentration numbers for four different scenarios

- the open space user
 - the refuge worker
 - the office worker
 - the rural resident

A group discussion followed

The members of the Focus Group discussed the role of the 25 mrem dose criterion in setting the RSAL. Specific questions and answers from this discussion follow

Q If 25 is within the risk range then you may go past it (more restrictive) not at the RSAL level but at the ALARA level. Is that correct?

A We could pick an RSAL that is lower (more restrictive) than the value calculated from the 25 mrem dose criterion even if the 25 mrem number falls in the risk range

Q What would be the basis of going beyond 25 mrem (more restrictive)?

A We'll have to develop a basis for it. At this point we're going to generate the candidate RSAL numbers and then we're going to talk about them.

Q Are you talking about something that is technically based or a policy negotiation?

A Probably a little of both.

A If 25 mrem falls within the CERCLA risk range we would have a regulatory basis for using that calculation to set the RSAL. But what we're saying is we haven't yet made that decision.

A member of the Focus Group asked for clarification on the use of the anticipated future user scenario to set the RSAL. The member indicated that it had appeared that the agencies would definitely use the anticipated future user as the basis for the RSAL but that now there was a possibility that some other value might be chosen. In a broader context the question went to which decisions are open for discussion and which are now made.

The US Department of Energy (DOE) answered that the draft Regulatory Analysis report presents current agency thinking and recommendations as they exist at the staff level. The policy issues are still being worked (including the collaboration with the Focus Group) and have not been submitted as recommendations to the RFCA Principals yet.

The member reiterated that the agencies might still choose a more restrictive RSAL than that associated with the anticipated future user.

The Colorado Department of Public Health and Environment (CDPHE) clarified that the idea that the RSAL will be based on an anticipated land use is a recommendation made by the RFCA Project Coordinators. The expectation is that the RSAL will be based on the risk range for the anticipated future user then the rural resident values will be used to drive further cleanup under As Low As Reasonably Achievable (ALARA). The approach has not been formally sanctioned. The approach and results will not be approved as final for some time. It is conceivable that the approach could change.

A member of the Focus Group raised the statement by EPA that the 25 mrem dose criterion would not fall within the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) risk range

EPA responded that the risk associated with the 25 mrem dose value would be radionuclide specific and that the risk could very well fall within the CERCLA range for a substance like Plutonium. He referred the Focus Group to Attachment 1 of the Regulatory Analysis report for further discussion.

The Focus Group member indicated that basing the RSAL exclusively on risk and not dealing with a dose criteria as well would be less confusing and more meaningful to most people.

My final comment on this particular piece of it would be having to do with the relation between the RSAL and the cleanup level. It would make a lot of sense to the RSAL to get as close as possible to the cleanup level so that work doesn't have to be done twice, which I can imagine happening if you had a different kind cleanup level than you had an RSAL.

A member of the Focus Group asked if an RSAL could result which is higher (less restrictive) than the final cleanup level.

DOE answered that a cleanup level more restrictive than the RSAL could result and provided several examples:

- An isolated dirty spot in an otherwise clean area
- Protection of water quality
- Long term stewardship strategy

CDPHE and EPA noted that the RSAL, not just the cleanup level, must fall within the CERCLA risk range. DOE disagreed, stating that its interpretation was that only the cleanup value was required to fall within the risk range, but further stated that using an RSAL within the CERCLA risk range would help to ensure that the integrated risk met the CERCLA requirement.

A member of the Focus Group noted that the selection of the value within the risk range for use as an RSAL is a policy level decision which the community could influence.

A member of the Focus Group expressed concern that contaminated areas that did not trigger the RSAL (based on the anticipated future user) would not be considered for

cleanup at all. He suggested that a more conservative RSAL (based on unrestricted use) would trigger more extensive evaluations and actions - that some action would be required but the exact nature of the action could be site specific.

Kaiser Hill responded that the approach using the anticipated future user was driven by Congress's expectations for cleanup and funding.

The member indicated that the assumption of an anticipated future user was in reality an institutional control and that a more restrictive RSAL would reflect the reasonable expectation that the institutional control would eventually fail.

DOE indicated that a key issue was now on the table for discussion. The law defines the minimum acceptable result of cleanup in terms of remaining dose or risk. The law does not limit the extent of cleanup beyond that minimum. DOE stated that it believes the community wants to get as much cleanup as it can possibly get. DOE further stated that the Agencies were balancing this need against constraints such as the amount of funding available to do cleanup and the limits of technology to perform cleanup.

A member of the Focus Group asked if the Agencies would be performing the calculations to bound the possibilities and address the constraints. DOE answered that the table being developed would bound the possibilities and provide the information needed for discussion and decisions.

A member of the Focus Group reminded the group that protection of surface water quality could dominate the decisions in places and drive the cleanup much lower than the RSALs would.

A member of the Focus Group noted that the dose and risk limits to maximally exposed and reasonably exposed individuals would be key policy decisions as well as the definition of the reasonably maximally exposed individual.

CDPHE noted that the application of ALARA will be another key activity yet to be fully defined. It was noted that the ALARA discussion with the community should begin quickly.

A member of the Focus Group noted that the Nuclear Regulatory Commission (NRC) definition of ALARA based on a cost-benefit analysis appears to conflict with the RFCA's goal of cleanup to the maximum extent feasible. EPA concurred that the RFCA statement comes from the RFCA vision and is not legally enforceable and

7

further stated that the NRC definition of ALARA should not be adopted at Rocky Flats Environmental Technology Site (RFETS)

A member of the Focus Group asked if ALARA would be applied to contaminated areas that did not trigger an action through the RSAL. DOE responded that the agencies are actively discussing that issue. A two tiered RSAL is being examined as a possible solution.

A member of the Focus Group asked what would be the anticipated future user scenario if the Wildlife Refuge bill does not pass. CDPHE responded that passage of the bill would happen outside the timeframe of the RSAL review and thus the RSAL process will use the wildlife refuge worker as the presumed anticipated future user.

A member of the Focus Group asked if there would be a separate public process for setting the cleanup level for the 903 Pad in addition to the RSAL setting process. CDPHE responded that such a public process is required. It is expected that the RFCA Stakeholder Focus Group will be a player in that public process.

A member of the Focus Group suggested that a two tier RSAL might be an effective way to capture situations that almost trigger the RSAL but not quite. DOE responded that that could be a good way to force a close look at such situations.

A member of the Focus Group expressed concern that the work load for the RSAL Working Group is greater than the resources available. The Agencies responded that more resources are being added and efforts are being made to focus the activities and discussions of the Working Group.

A member of the Focus Group asked if the Agencies had the latitude to use a definition of ALARA other than the one specified in the NRC rule. The State Attorney General's Office answered that there was sufficient flexibility to allow our own definition.

A member of the Focus Group expressed concern about a cleanup that caused more harm than it saved. DOE responded that the RSAL would trigger an action. The design of the action (which could be controls rather than cleanup) would consider mitigating effects such as worker safety and habitat damage.

A member of the Focus Group reminded the group that the setting of RSALs is only a step in the overall process of planning the cleanup of Rocky Flats. He suggested that the Focus Group needs to look at the big picture and decide where to spend its effort.

He suggested that the group focus on getting to cleanup levels instead of a tight focus on RSALs

REVIEW OF RESRAD 6.0 APPROACH TO AIR PATHWAY

Bob Nininger of Kaiser Hill introduced Martha Hyder

Martha made a presentation on her comparison of RESRAD air calculations (see Appendix C). Her review examined how air calculations are performed in three versions of the RESRAD model:

- Version 5.70 and earlier (old RESRAD)
- Version 5.75 and later (new RESRAD) and
- RESRAD as modified by RAC (RAC RESRAD)

In her review she compared results of air calculations for the three versions and qualitatively compared the effect of different air calculations and other factors in determining an RSAL.

A group discussion followed Martha's presentation.

A member of the Focus Group asked if there was another alternative to the three RESRAD approaches that would be better for RFETS. Martha responded that the RESRAD code can meet Rocky Flats needs if used properly and that she doesn't know of a better approach.

A member of the Focus Group asked why the mass loading of Plutonium seemed to go down as wind speed increased. Martha responded that this resulted from increased amounts of non-contaminated dust resuspended by higher winds.

The member asked if amount of Plutonium in the air would go up for high wind events. Martha answered that in general this would occur but noted that annual average wind speed is used in RESRAD - individual events are not treated.

A member of the Focus Group asked how the wind erosion threshold plays into RESRAD calculations. Martha replied that it doesn't apply directly because RESRAD is an annual average model but that it is incorporated in the calculations indirectly through the mass loading number that is input to the model.

A member of the Focus Group asked if Martha had access to the source code for Old RESRAD as part of her review. Martha responded that she did not.

The discussion next addressed the finding that Old RESRAD was more conservative than New RESRAD. Martha pointed out that the findings were restricted to the performance of the air pathway portions of the models and did not reflect the overall conservatism of the codes. Also, the inclusion of the fire scenario in RAC's analysis was a determining factor in the conservatism of that analysis.

A member of the Focus Group asked if RARC RESRAD was very sensitive to the specific location chosen to represent the maximum exposed individual because the soil contamination level at that location would dominate the RSAL number. Martha responded that the 903 pad calculation she had performed was representative of that effect.

A member of the Focus Group noted that Martha's report showed a particulate air concentration of 7,000 micrograms per cubic meter for the fire scenario. Martha responded that this was an appropriate air concentration within a plume from a forest fire. The member noted that the RAC RESRAD analysis assumed as a worst case that this concentration would last 24 hours per day for a year.

A member of the Focus Group expressed concern that Kaiser Hill's role in contracting for the review of the RESRAD air pathway treatment represented a conflict of interest. He indicated that a financial stake by Kaiser Hill in the outcome of the review was the basis for the concern and that even the appearance of such a conflict could be damaging to the process. The member stated that the review should have been conducted independently of Kaiser Hill and that the community should have been involved in selecting the contractor. The member submitted a letter to DOE expressing his concern.

DOE and Kaiser Hill responded that Kaiser Hill, by the nature of its contract, has no financial stake in the outcome of the review and that Kaiser Hill had commissioned the study at the request of the RSAL working group. DOE noted that the nature of the study, the contractor to perform the work, and the method of contracting the work had been discussed with the Focus Group at previous meetings in December and January. DOE stated that Kaiser Hill was responsible for providing technical support and conducting studies in support of the RSAL review as a commitment under its operating contract for Rocky Flats. CDPHE noted that it also contracts for technical support as part of the RSAL review.

The City of Westminster stated that it believes Kaiser Hill's role in contracting for the study represented a conflict of interest because it would have been a conflict of interest for the City of Westminster if it had been in a similar situation.

The focus group member stated that the wording on the cover sheet of the report stating that the work had been done for Kaiser Hill indicated that the work was commissioned primarily by Kaiser Hill rather than the agencies. This was part of the concern.

REPORT-BACK FROM WORKSHOP DESIGN GROUP

Ken Korkia presented the report back from the workshop design group (Appendix D). He indicated that the workshop would be two days long, held on a Friday and Saturday, and would focus on computer models and parameter selection. The sessions would be led by a panel of experts. Representatives of DOE and the regulator would also present and discuss their current views and parameters.

A group discussion followed.

DOE stated that it would support the workshop as designed and would want to add some additional experts of its choosing to the panel.

DOE asked if this workshop had been designed to meet the needs of the Rocky Flats Citizens Advisory Board (RFCAB) as well as the Focus Group. The group answered: Yes.

A member of the Focus Group noted that there was strong interest in the community for a workshop on health effects as well.

Ken indicated that March 30 - 31, 2001 are the target dates for the Workshop. He also stated that Laura Till had been selected to facilitate the workshop. He indicated that the workshop would probably cost \$15,000 - \$20,000.

Reed asked the Focus Group if everyone was comfortable with the revised workshop design. The Focus Group members indicated that they were in agreement with the approach and agreed to move ahead. The RFCAB will take the lead in implementing the workshop and will form subcommittees of Focus Group members to move ahead.

A member of the Focus Group emphasized the need for a community discussion on health effects. She indicated that a special evening session might be appropriate in order to broaden the discussion beyond the Focus Group to the community as a whole. She suggested that the session might require a full day or evening and could be sponsored by the community rather than the agencies.

AGENDA

The Focus Group agreed on the following topics for the February 28 2001 meeting:

ALARA discussion

RFCA Focus Group meeting process discussion

ADJOURNMENT

Christine reminded the Focus Group that the February 28 2001 RFCA Focus Group will be held at the Arvada City Hall 3 30 to 6 30 p m.

The RFCA Stakeholder Focus Group meeting was adjourned at 6 30 p m.

**RFCA Stakeholder Focus Group
February 14, 2001
Meeting Minutes**

**Appendix A
Participants List**

**RFCA Stakeholder Focus Group
February 14, 2001
Meeting Minutes**

**Appendix B
Tim Rehder Regulatory Analysis Report, Revision 2
Discussion RSAL Peer Review Update and Discussion**

**RFCA Stakeholder Focus Group
February 14, 2001
Meeting Minutes**

**Appendix C
Martha Hyder Review of RESRAD 6.0 Approach to Air
Pathway**

**RFCA Stakeholder Focus Group
February 14, 2001
Meeting Minutes**

**Appendix D
Ken Korkia Report-back from Workshop Design Group**

**RFCA Stakeholder Focus Group
February 14, 2001
Participants List**

NAME		ORGANIZATION / COMPANY
David	Abelson	RFCLOG
Lorraine	Anderson	City of Arvada
Christine	Bennett	AlphaTRAC Inc
Ray	Betts	
Kent	Brakken	DOE RFFO
Laura	Brooks	Kaiser Hill Company LLC
Kimberly	Chleboun	RFCLOG
John	Ciolek	AlphaTRAC Inc
Gerald	DePoorter	RFCAB
Sam	Dixon	City of Westminster
Shirley	Garcia	City of Broomfield
Steve	Gunderson	CDPHE
Mary	Harlow	City of Westminster
Jerry	Henderson	RFCAB
Reed	Hodgin	AlphaTRAC Inc
Martha	Hyder	Wind River Environmental Group
Ken	Korkia	RFCAB
Joe	Legare	DOE
Ann	Lockhart	CDPHE
Carol	Lyons	City of Arvada
John	Marler	RFCLOG
Tom	Marshall	Rocky Mountain Peace and Justice Center
Anna	Martinez	US DOE
Dan	Miller	Natural Resources and Environment Section Colorado Department of Law
LeRoy	Moore	RMPJC
Diane	Niedzwiecki	CDPHE
Bob	Nininger	Kaiser Hill Company LLC
Steve	Paris	RMRS
Tim	Rehder	US EPA
Mark	Sattelberg	US Fish and Wildlife Service
Dave	Shelton	Kaiser Hill Company LLC
Carl	Spreng	CDPHE
Noelle	Stenger	RFCAB

Regulatory Analysis - 1st Draft

- Proposed that RSAL would be based on either 25 mRem/yr to anticipated future user or a risk range value (ie 10-4, 10-5 or 10-6)
- An ALARA analysis would be performed on every project to determine if cleanup below the RSAL was reasonable

Important Points in 2nd Draft

- NRC Rule is a Relevant and Appropriate Requirement
 - So 25 mRem/yr dose requirement must be met
 - ALARA Analysis will be required for each project
 - There is a preference for unrestricted use
- If 25 mRem/yr is not within the risk range, the RSAL will be based on a value within the Range

Draft 2 RSAL/Cleanup Level

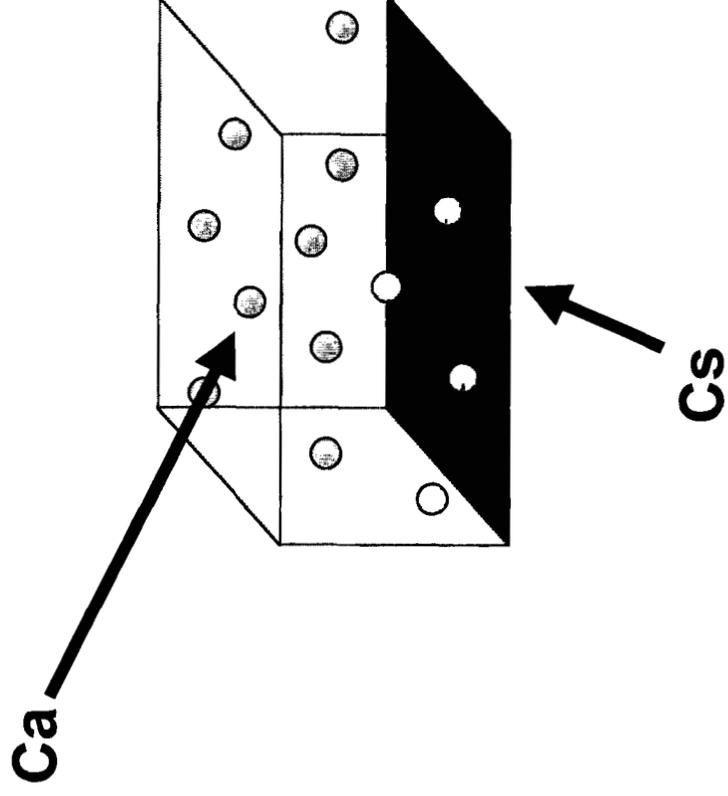
Proposal (surface soil)

- RSAL will be based on the anticipated future user (wildlife refuge worker)
- When an action is triggered (contam > RSAL) ALARA analysis will be performed to determine if cleanup can be achieved that will support unrestricted use

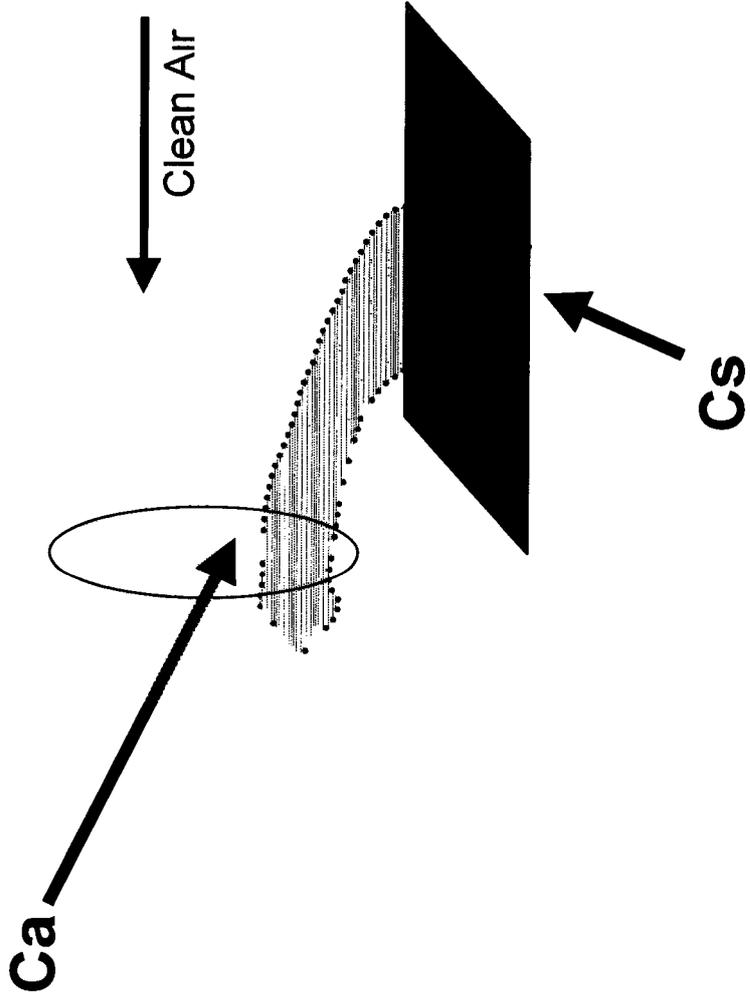
RSAL/Cleanup Level Table

Land Use	25 mRem	10-4	10-5	10-6
Restricted				
Open	?/?	?	?	?
Space User (child/adult)				
Refuge	?	?	?	?
Worker				
Unrestricted				
Rural	?/?	?	?	?
Resident (child/adult)				
Resident	?/?	?	?	?
Rancher (child/adult)				

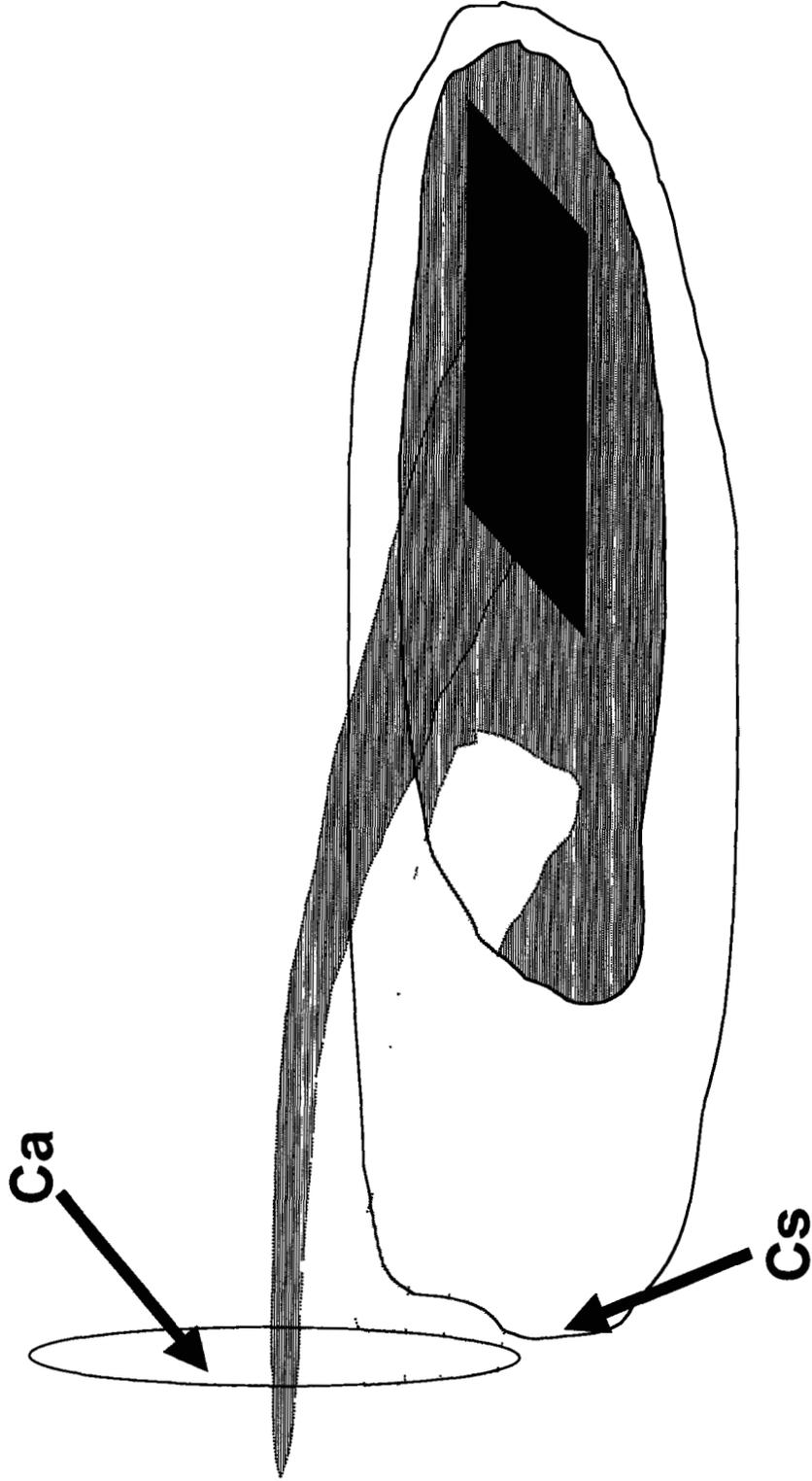
“Old” RESRAD



“New” RESRAD



“RAC” RESRAD



RESRAD Air Calculation Comparison



February 2001

Scope of Review

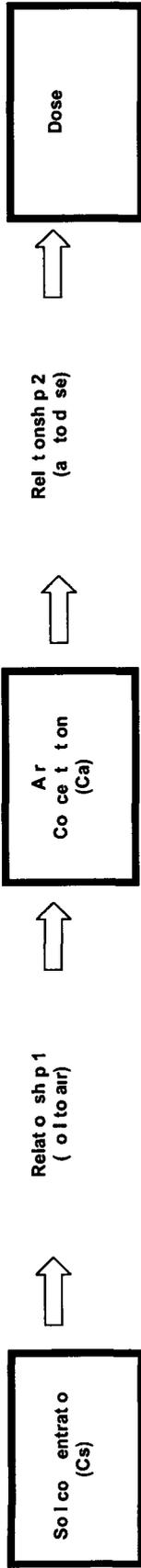
- **Determine how air calculations are performed in 3 versions of RESRAD:**
 - **Version 5.70 and earlier (“old” RESRAD)**
 - **Version 5.75 and later (“new” RESRAD)**
 - **RESRAD as modified/used by Risk Assessment Corporation (RAC) in independent derivation of RSALs (RAC RESRAD)**

Scope of Review, con't

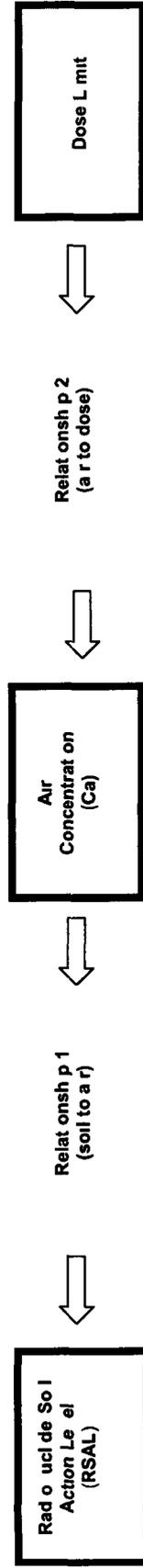
- **Compare results of air calculations for the 3 versions**
- **Qualitatively compare effect of different air calculations and other factors in RSAL determination**

RESRAD Overview

Step 1



Step 2



RESRAD Air Calculation

$$\mathbf{Ca = Cs \times ML \times AF}$$

where:

**Ca is the concentration of radioactivity in
air (pCi/m³)**

**Cs is the concentration of radioactivity in
soil (pCi/g)**

**ML is the mass loading of dust in the air
(g/m³)**

AF is the area factor (dimensionless)

RESRAD Air Calculation, con't

- **Area factor (AF) adjusts the mass loading in air to account for the fraction that originates from the contaminated area**
- **Relationship 1 = Ca/Cs = ML x AF**

Old RESRAD (5.70 and before)

- **Ca = Cs x ML x AF (basic equation)**
- **Area factor (AF) based on size of contaminated area**
- **Cs, ML, and size of contaminated area are input by user (or defaults used)**
- **Ca is calculated for the air immediately above the contaminated area (i.e., Ca is maximized)**

Old RESRAD, con't

$$\text{AF} = A^{1/2} / (A^{1/2} + \text{DL})$$

where:

AF is area factor (fraction of dust in air that originates from contaminated area)

A is size of contaminated area (m²)

A^{1/2} is length of side of contaminated area

DL is a dilution length, set to 3 m (default)

New RESRAD (5.75 and later)

- **Ca = Cs x ML x AF (basic equation)**
- **Only difference from old RESRAD is that formula for area factor is different:**

$$AF = a / (1 + b(A^{1/2})^c)$$

where:

a, b, and c are coefficients for curve fitted to simulation modeling results; they vary with wind speed

New RESRAD, con't

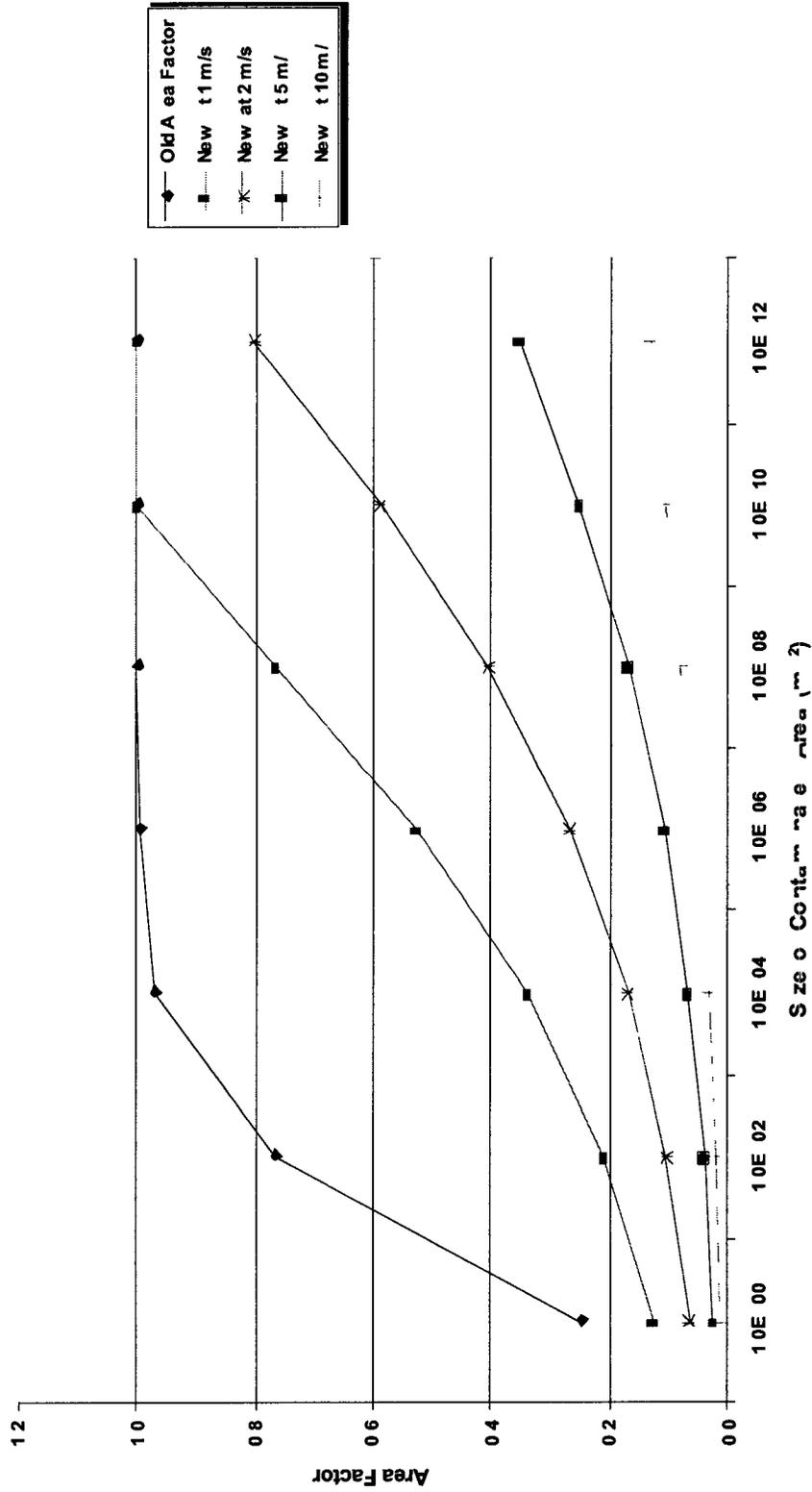
- **AF based on size of contaminated area and wind speed (old RESRAD based on size alone)**
- **Cs, ML, size of contaminated area, and wind speed input by user (or defaults used)**
- **Ca is calculated for the “downwind” boundary of the contaminated area (i.e., Ca is maximized)**

New RESRAD, con't

- **To derive area factor formula, Gaussian plume simulations compared air concentrations of pollutants from various size areas, under various wind speeds, to concentrations from an infinitely large area**
- **Results fitted to curves and coefficients that define the curves**

are built into RESRAD

OLD vs. New RESRAD Area Factors



RAC RESRAD

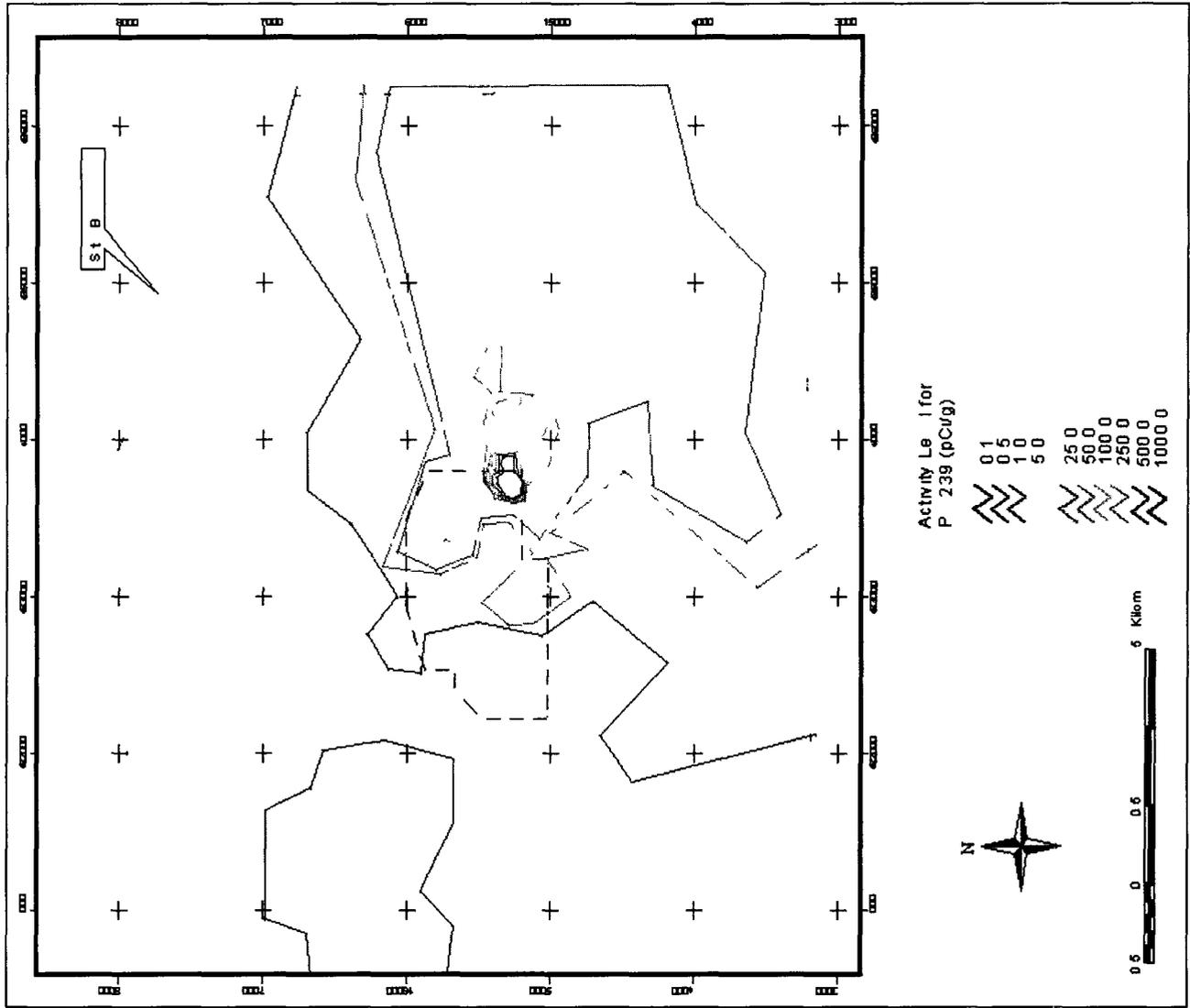
- **RAC performed air calculation outside of RESRAD, then used new RESRAD to compute intakes and doses**
- **Ca and Cs were computed outside of RESRAD using:**
 - ! **Existing soil and air radionuclide concentration data**
 - ! **Combination of resuspension model and dispersion model to relate soil**

RAC RESRAD, con't

- **Resuspension/dispersion model:
Coefficients for resuspension portion
unknown; coefficients were adjusted
to fit model results to measured air
concentrations**
- **Manipulated RESRAD into duplicating
the externally calculated Ca by
substituting different quantity for
user-input ML value**

RAC Use of Air Calculation

- **RAC's model allowed calculation of Ca at many locations**
 - **However, to derive RSALs, input maximum Ca/Cs pair (i.e., maximized Ca/Cs instead of Ca)**
 - **Maximum Ca/Cs ratio represents eastern fenceline, where air concentration result from upwind contamination (903 Pad area) but actual soil concentrations of radioactivity are**



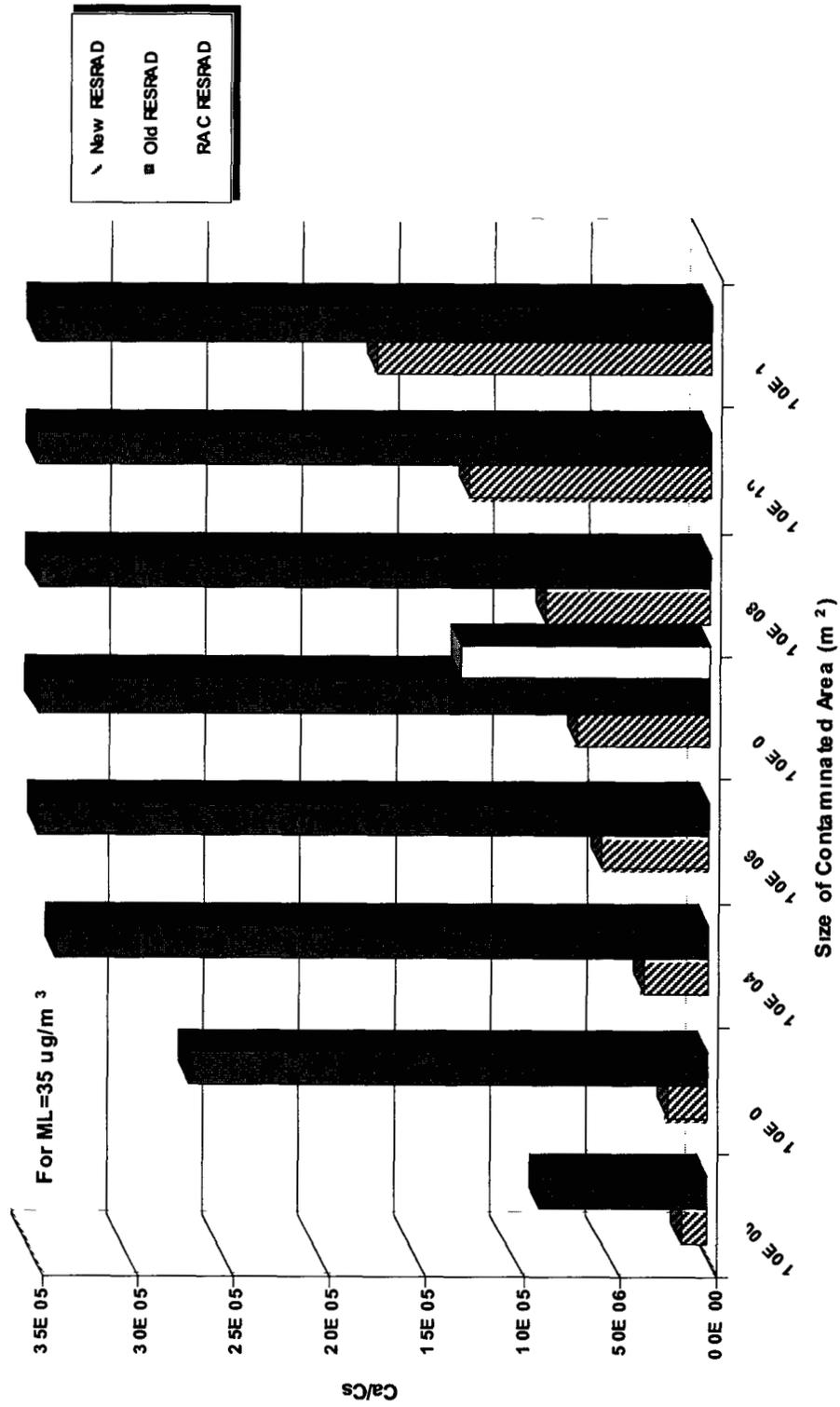
RAC Use of Air Calculation, con't

- **RSALs based on series of Monte Carlo simulations vs. deterministic RSALs calculated by RESRAD**
- **RSAL represents a point on a probability curve rather than the soil concentration that would result in the limiting dose**

RAC Use of Air Calculation, con't

- **Fire included probabilistically and assumed to increase annual resuspension (and therefore dose) by up to 200 times**
- **RSALs set based on 10% probability of exceeding dose limit; at that level, fire simulations drive RSAL calculation**

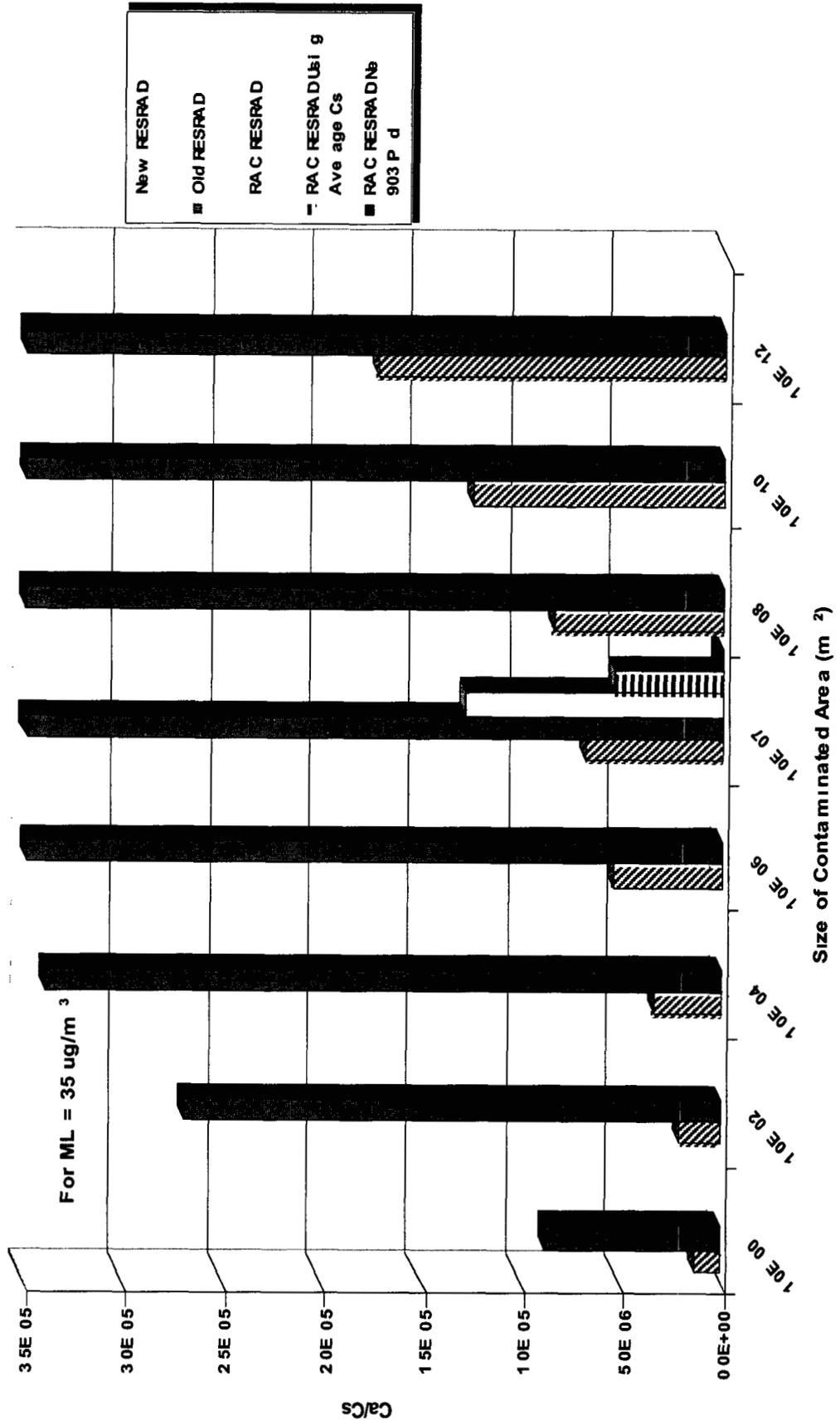
Comparison of Air Calculations



Comparison of Air Calculations, con't

- **Ca/Cs ratio (Relationship 1)
compared**
- **Old RESRAD predicts highest air
concentration for a given amount of
soil contamination; resulting RSAL
would be lowest (most restrictive)**
- **RAC Ca/Cs ratio in between;
therefore, RSAL would be in between
old and new RESRAD**

Comparison of Air Calculations, con't



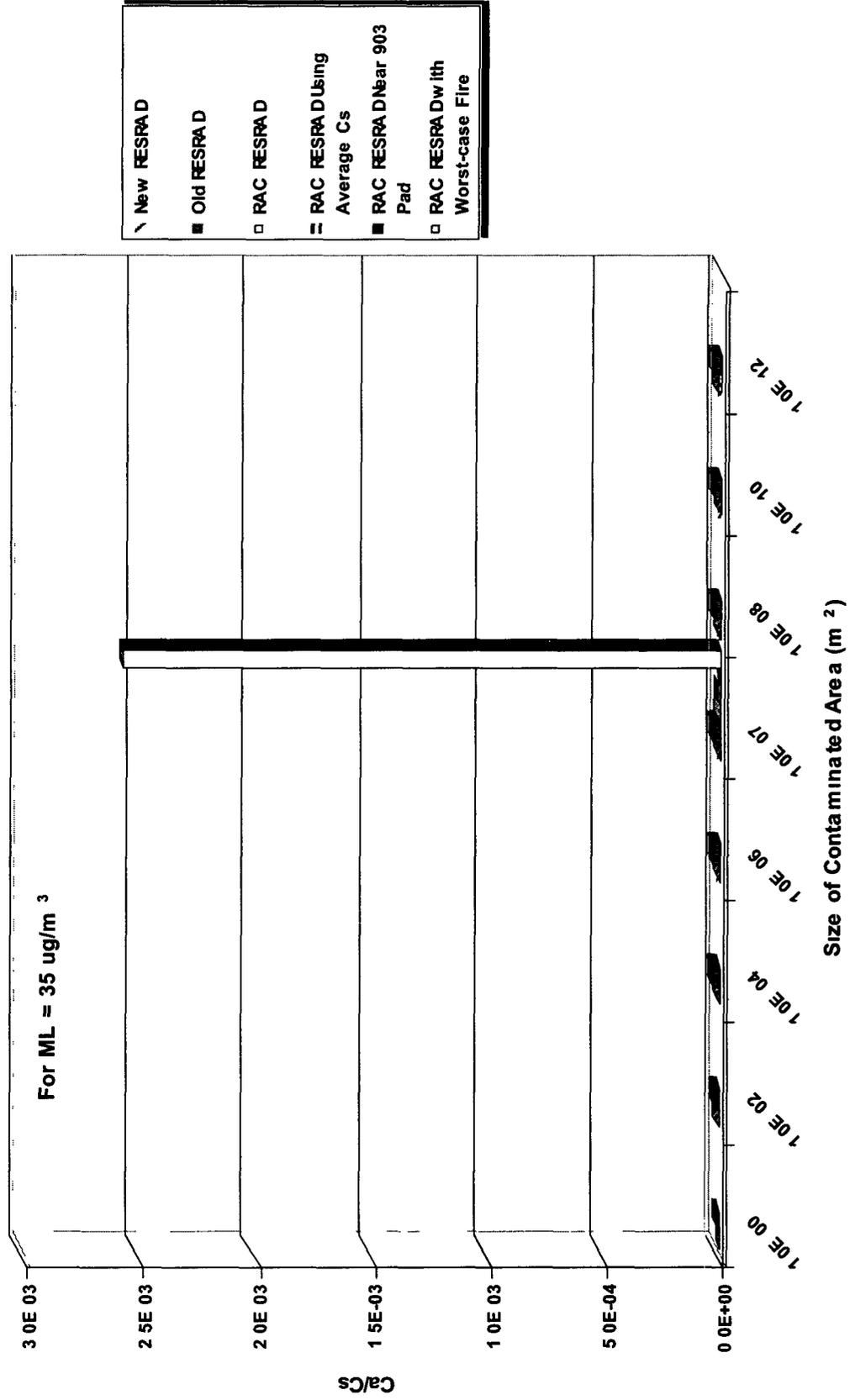
54

Comparison of Air Calculations, con't

- **RAC Ca/Cs ratio recalculated:**
 - **1) Based on upwind average Cs**
 - **2) For point near 903 Pad (Ca maximized, instead of Ca/Cs ratio)**
- **Both revisions show reduced Ca/Cs (lower air concentration for a given amount of soil contamination); therefore, RSALs would be higher (less restrictive) than either old or**

now RECDAN

Comparison of Air Calculations, con't



Comparison of Air Calculations, con't

- **If a worst case fire is included, Ca/Cs ratio is greatly increased**
- **Resulting RSAL (calculated deterministically) would be greatly decreased (more restrictive)**

Conclusions

- All other things being equal, old RESRAD (5.70 and before) would result in more restrictive RSALs than either new RESRAD (5.75 and later) or RAC RESRAD
- RAC RESRAD produces air pathway calculations in range of new RESRAD; however, RSALs derived by RAC are highly sensitive to location,

contaminated area size and fire

Addendum: RAC RESRAD Calculation

Note: *Bold, italic* notation is used for quantities calculated by RAC outside of RESRAD

- **Ca = Cs x ML x AF (basic RESRAD air calculation)**
- **Therefore, Ca/Cs = ML x AF**
- **RAC calculated Ca and Cs outside of RESRAD using different model**

Addendum: RAC RESRAD

Calculation, con't

- **RAC also calculated AFr = area factor that would be calculated by RESRAD for given area and wind speed**
- **$ML \times AF/AFr$ was input to RESRAD in place of ML (where $ML \times AF = Ca/Cs$ calculated externally)**

Addendum: RAC RESRAD

Calculation, con't

RESRAD calculates:

- **Ca = Cs x (ML x AF/AFr) x AF where
AFr = AF**
- **Ca = Cs x (ML x AF) (AF, AFr cancel)**
- **Ca = Cs x (Ca/Cs)**
- **Ca = Ca for the Cs shown above**

RFCA Focus Group Workshop Proposal

- **General Structure of the Workshop**
 - 2 days long (Friday and Saturday)
 - Focusing on Computer Models and Key Parameter Selection
 - Invited Panel of Experts will present and discuss key topic areas
 - DOE and the regulators will also present and discuss current assumptions and views
 - Attendees will have opportunity to interact with DOE, regulators and the panel of experts
 - All discussions will be facilitated

RFCA Focus Group Workshop Proposal

- **There are four major parts to the workshop**
 - **Foundations for understanding computer modeling as it relates to soil action levels**
 - **Application of models at Rocky Flats**
 - **Specific parameters of concern**
 - **Next steps**

***RFCA Focus Group
Workshop Proposal***

- **Suggested panel of experts include:**
 - **John Till (RAC)**
 - **Art Rood (RAC)**
 - **Kathy Higley (Oregon State)**
 - **Argonne Representative**

RFCA Focus Group Workshop Proposal

- **Day 1: Part 1**
 - **Foundations of computer modeling**
 - **Basic functioning and components of models**
 - **History of model development**
 - **Key assumptions**
 - **RESRAD and its development**

RFCA Focus Group Workshop Proposal

- **Day 1: Part 2**
 - **Application of modeling at Rocky Flats**
 - **Specific environmental conditions and exposure pathways at Rocky Flats**
 - **Challenges in applying models at Rocky Flats to meet specific conditions and exposure pathways**
 - **Application of RESRAD 6 0 at Rocky Flats**
 - **Key parameters of concern with respect to circumstances at Rocky Flats**

RFCA Focus Group Workshop Proposal

- **Day 2: Part 3**
 - **Parameters of Concern at Rocky Flats**
 - **DOE and regulators' assumptions and decisions regarding these parameters**
 - **Panel members react**
 - **Open dialogue with audience**

RFCA Focus Group Workshop Proposal

- **Day 2: Part 4**
 - **Where do we go from here?**
 - **General dialogue (a chance for the workshop attendees to engage the panel of experts and representatives from DOE and the regulators in general discussion related to computer models and parameter selection)**
 - **Identification of next steps What do we do with the information learned during the workshop?**

RFCA Focus Group Workshop Proposal

- **General Logistics**
 - **CAB will head up logistical planning with support from Focus Group members, DOE and the regulators, funds will made available through CAB's existing grant mechanism with DOE**
 - **Will form 2 committees**
 - **Agenda planning committee - will identify and assign topics for presentation and work with panel experts**
 - **Logistical planning committee - will work on general workshop planning and logistics**

***RFCA Focus Group
Workshop Proposal***

- **Proposed dates:**
 - **March 30 and 31**
 - **April 20 and 21**
 - **April 27 and 28**

Draft RSAL Public Process Proposed Schedule (2/21/01)

Task	1 st Draft Dttbtd	Focus Group Mtg	2 nd Draft	Focus Group Mtg	Public Review & FG Comments	Final Draft Principal
Task 1 (Regulatory Analysis)	10/27/00	11/18/00 & 11/19/00	1/19/01	2/14/01	3/8/01	3/22/01
Task 2 (Modeling)	11/20/00	12/13/00	3/02/01	3/14/01	3/28/01	5/30/01 (Note 3)
Task 3 (Presentation)	4/17/01	1/31/01	(Note 1)	4/25/01	5/09/01	5/30/01
Task 4 (News)	4/3/01	1/17/01	(Note 1)	4/11/01	4/25/01 (Note 2)	5/16/01
Task 5 (Consultation @ the)	10/25/00	11/8/00	12/1/00	1/3/01		5/30/01 (w/retire report)

Focus Group Meetings (Proposed)

10/25/00	11/8/00	11/29/00	12/13/00	1/3/01
Review RSALp	Regulatory Analysis (Report)	Regulatory (Q&A) RFCAP Review	Regulatory 3 Modeling (Report)	Identify SAP News
1/17/01	1/31/01	2/14/01	2/28/01	3/14/01
Submit News Workshop Web Page	Modeling RSAL Workshop team report Presentation Task 1	Regulatory Update modeling (Workshop)	ALARA Proc	Task 1 Presentation & Focus Group Meeting
3/28/01	4/11/01	4/25/01	5/9/01	5/23/01
Modeling Study Analysis Appendix	News Task 2 Presentation & Focus Group Meeting ALARA	Presentation 1 (Report Task 3 port)	Presentation 2 Task 4 Focus Group Meeting	Draft Report Task 3 Presentation & Focus Group Meeting

Formal Public Comment Period For RSAL Report

6/14/01	8/13/01	9/14/01
Public Comment Beg	Public Comment End	Final Report Released

Note 1: Schedule draft currently planned for Review & Focus Group Meetings will be reported through draft (with Presentation Report)

Note 2: Focus Group Meetings by the Review currently planned for Task 4

Note 3: Final draft for Task 2 held off from modeling workshop (will be added with final draft report)

6/2/02