PROJECT UPDATE
February 2000

Project Comprised of Eight Tasks

Work on review of the interim radionuclide soil action levels at Rocky Flats is nearing its scheduled completion date of March 31, 2000. As noted in the fact sheet entitled "*Planning for Tomorrow...Radionuclide Soil Action Levels at Rocky Flats"*, the Radionuclide Soil Action Level Oversight Panel (RSALOP) was formed in response to concern voiced by members of the community at interim radionuclide soil action levels (RSALs) set for the Rocky Flats site. After receiving funding from the Department of Energy, the Panel contracted with *Risk Assessment Corporation* (*RAC*) to conduct an independent scientific assessment of the RSALs for Rocky Flats.

The project is organized into eight tasks. In addition, a final summary report will be published to recap the study's findings and propose recommendations for a radionuclide soil action level (RSAL) at the Rocky Flats Site.

1. Cleanup Levels at Other Sites
2. Computer Models to Determine RSALs
3. Key Project Inputs and Assumptions
4. Methodology
5. Independent Calculation of RSALs for Rocky Flats
6. Sampling Protocol
7. Interaction with the Actinide Migration Panel
8. Public Involvement

Task 1: Cleanup Levels at Other Sites

Completed in April 1999, this report provided the Panel with a clear, unbiased evaluation and comparison of previously developed soil action levels for Rocky Flats and other sites around the world. The evaluation found that the soil action levels established for Rocky

Flats are significantly higher than action or cleanup levels at other facilities, even when normalized to dose. However, the report provided a better understanding and clarification for the elevated levels and found that the calculation is strongly controlled by three basic parameters:

- Dose conversion factor (solubility class of plutonium)
- Mass loading (resuspension), and to a lesser degree
- Breathing rate

In nearly every case, differences in soil action levels between sites could be explained by the different assumptions made for one or more of the basic parameters. The Task 1 report identified the input model parameters that are of primary importance in determining soil action levels so that this information can be used as the study evolves.

Task 2: Computer Models

The goal of this report, which was finalized in July 1999, was to discuss and compare environmental assessment programs that might be used for developing soil action levels for Rocky Flats. *RAC* scientists evaluated the following five computer programs for use in the project: RESRAD, MEPAS, GENII, MMSOILS, and DandD. The report discusses the pros and cons of each program and provides information on the four key elements that must be considered when developing soil action levels. Based upon extensive evaluation of the available computer codes, *RAC* representatives concluded that either the RESRAD or GENII program could be used. After further discussion with Panel members, it was decided to proceed with the use of the RESRAD program.

Task 3: Inputs and Assumptions

After months of discussions and input from Panel members, *RAC* representatives conducted a sensitivity analysis on the inputs and assumptions required for the use of RESRAD. Site-specific values were derived or uncertainty distributions were created for critical parameters emerging from the sensitivity analysis. The sensitivity of each parameter was then assessed using the built-in Monte Carlo-based sensitivity analysis packaged with the latest version of RESRAD. This report also includes a careful evaluation of scenarios for their applicability to potential future land uses. The report describes the process of scenario evaluation and discusses the scenarios chosen for the independent analysis of the Rocky Flats soil action levels. To develop meaningful and appropriate calculations for soil action levels at Rocky Flats, site-specific data were collected and will be used for all parameters that were revealed as sensitive to change and parameters that warranted adaptation. Primary efforts were directed toward the most important parameters for soil action level calculations with RESRAD: mass loading, soil-to-plant transfer factors, distribution coefficients, area of contamination, and mean annual wind speed. Values and distributions presented in this report will be used in the calibrated version of RESRAD, and values for soil action level and dose will be presented as distributions of possible values for each individual scenario.

Task 4: Methodology

"Methodology" is a topic that encompasses the project as a whole through ongoing dialogue with the Panel and Community regarding proposed methodologies employed in the study. Methodologies that may be considered and/or decided upon are discussed within reports specific to project tasks. Therefore, no separate report is being published on this task

Task 5: Independent Calculation of RSALs

Although this report has been identified as "Task 5", it is actually the final step in the study to be completed after running the RESRAD program using the Inputs & Assumptions decided upon from Task 3. The Draft Final Task 5: Independent Calculation presents the results of *RAC's* independent assessment and describes the calculations and results of the soil action levels for the seven exposure scenarios identified in the Task 3 report.

Task 6: Soil Sampling Protocols

RAC released the draft final report for Task 6 at the December 1999 Panel meeting. The document reviewed the current site sampling program and procedures as well as individual site sampling and analysis plans. It also went on to provide recommendations to the Panel for consideration in developing a sampling protocol for the site and discussed ten key elements that should be a part of any sampling protocol. The report concluded that the MARSSIM guidance provides the most comprehensive approach currently available for the development of radiological surveys and recommended that the final status surveys conducted at Rocky Flats follow the general principles contained therein.

Task 7: Interaction with the Actinide Migration Panel

The Actinide Migration Panel is overseeing an effort begun by contractors at the Rocky Flats site in 1996. Comprised of a national task force, the group is drawing upon state-of-the-art knowledge throughout the scientific community on behavior and mobility of actinides in the environment. It is hoped that this group's efforts will help to provide information necessary to develop the best possible approach for the successful closure of the Rocky Flats site. *RAC* representatives, as well as numerous RSALOP members, attend regular Actinide Migration Panel meetings and are attempting to extrapolate any information gathered to assist in the independent review of the soil action levels for the Rocky Flats site. No separate formal report will be generated for this Task.

Task 8: Public Involvement

A public involvement strategy was developed and implemented to provide regular updates to the community on the progress of this study. Panel members meet the second

Thursday of each month with *RAC* representatives to review project findings and work with the contractor to set and determine criteria for key components of the study. The public was invited to attend the monthly Panel meetings. Three public meetings were scheduled at key points to receive input from the community throughout all phases of the technical review. In addition, with some up-front planning, Panel members can provide briefings to community groups or interested parties. Please contact Mary Harlow, Panel Co-Chair, at 303-430-2400, Ext 2174, for additional details.

Peer Review Team Completes its Work

To enhance the quality and credibility of this effort, the Panel formed a Peer Review Team comprised of five nationally recognized experts with backgrounds related to this effort. Team members were tasked with reviewing and commenting on each draft final report produced for this project. Comments were then forwarded to *Risk Assessment Corporation*, who reviewed and provided feedback on the peer review input at the Panel meetings. Members of the Panel then looked at the Peer Review input coupled with the feedback from *RAC* to assure that Panel members concurred with *RAC's* comment resolution.

RAC's Conclusions Regarding RSALs for Rocky Flats

"RAC's task was to evaluate the RSALs adopted for Rocky Flats in 1996, to develop a methodology for independently determining RSALs, and to calculate RSALs for Rocky Flats by applying this methodology. We conclude that applying our method to the exposure scenarios approved by the Oversight Panel, using 15 millirem as a dose limit, and assuming a probability level of 10%, indicates a technically based RSAL for 239 and 240 Pu in soil at Rocky Flats of 35 pCi g-1. For uranium, a technically derived RSAL using our methodology and assumptions would be 10 pCi g-1".

(Quoted from the "Conclusions" Section of *RAC's* Final Project Summary)

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