



ORNL-5786

OAK RIDGE NATIONAL LABORATORY

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Summary
Reference

A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides through Agriculture

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6. SUMMARY

In this report we have documented most of the default parameters incorporated into the TERRA computer code. Especially, we have presented a literature review and systematic analysis of element-specific transfer parameters B_v , B_r , F_m , F_f , and K_d . This review and analysis merely suggests default values which are consistent with the modeling approaches taken in TERRA and may be acceptable for most assessment applications of the computer code. However, particular applications of the code and additional analysis of elemental transport may require alternative values to the default values in TERRA. Also, use of the values reported herein in other computer codes simulating terrestrial transport is not advised without careful interpretation of the limitations and scope of our analyses.

In addition to the default elemental transport parameters, we have discussed an approach to determination of vegetation-specific interception fractions. The limitations of this approach are many, and its use indicates the need for analysis of deposition, interception, and weathering processes. Judgement must be exercised in interpretation of plant surface concentrations generated through use of our approach.

Finally, we have documented the location-specific agricultural, climatological, and population parameters in the default SITE data base. These parameters are intended as alternatives to "average" values currently used in assessment models. Indeed, areas in the United States where intensive crop, milk, or beef production occurs will be reflected in the parameter values as will areas where little agricultural activity occurs. However, the original information sources contained some small error and the interpolation and conversion methods used will add more. Therefore, our values should be regarded as default best estimates, not absolute "correct" values. As with any assessment, site-specific information is recommended over default values.

Parameters used in TERRA not discussed herein are discussed in the companion report to this one—ORNL-5785.³ In the companion report the models employed in and the coding of TERRA are discussed. These reports together provide documentation of the TERRA code and its use in assessments.

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