MAR 16 1989

MEMORANDUM FOR: Chad J. Glenn
Regulatory Branch
Division of Low-Level Waste Management
and Decommissioning, NMSS

FROM: John R. Starmer, Section Leader
Technical Branch
Division of Low-Level Waste Management
and Decommissioning, NMSS

SUBJECT: REVIEW AND COMMENT ON SNLA LETTER REPORT ON IMPACT-BRC COMPUTER CODE VALIDATION

We have reviewed the document entitled "IMPACTS-BRC Computer Code Validation", submitted by Sandia National Laboratories in fulfillment of SNLA's contractual obligations under Task 3 of FIN A1763. We recognize that the content of this report deviates somewhat from the report title and the original intent of Task 3. However, we agree that the original objectives of Task 3 should be modified since it is not possible to fully validate any model for radionuclide transfer through the environment. In general, "validation" consists of showing that a conceptual model and the computer code derived from it provide an adequate representation of processes in the real environment. Ideally, "validation" is carried out by comparing model calculations with sets of field observations and experimental measurements. However, the IMPACTS-BRC computer code was developed for generic use and as a screening tool for dose calculation. Parameters used in generic screening codes tend to be conservative in order to provide reasonable assurance that the assigned dose limits are met for the protection of the general public. Indeed, we encourage use of site specific information if it is available.

SNL's evaluation of the code to date involves the comparison to other codes of: the transportation model; the direct radiation pathway models; and the dose conversion factors for inhalation and ingestion. An evaluation of the Bateman equations for radioactive decay calculation was also performed. However, there are other parameters or default values in the code which are not fully evaluated. These include the transfer coefficients and bioaccumulation factors for food chain pathways, resuspension factors from soil to air pathaways, consumption rates for inhalation and ingestion pathways, and occupancy factors, all of which are important parameters in dose calculation. Some of these items have been generally evaluated in NCRP Report 76. We would like to see SNL evaluate the specific parameters used in the code and determine if they are generally acceptable to be used as default values when site specific information is not available.

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In the conclusion we would like to see Sandia make a determination, based on a full evaluation, that the IMPACT-BRC Code is generally acceptable as a screening tool for BRC petition evaluation.

Dr. Edward Shum reviewed this report. If you have further questions concerning his comment, please call him at 492-0607.

Original Signed By

R. John Starmer, Section Leader
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SUBJECT ABSTRACT:

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