Ticket for T. Johnson

WASTE MANAGEMENT GROUP, inc.

July 27, 1982

Mr. R. Browning
Deputy Director
Division of Waste Management
U.S. Nuclear Regulatory Commission
Washington D.C. 20555

Subject: Topical Report on RADMAN® - A computer code to classify and document LLW in accordance with 10CFR Part 61.

Dear Bob,

As recently discussed with Tim Johnson and other staff members, we request that a Topical Report on our RADMAN® computer program be considered for NRC review. This program was recently demonstrated for Tim and Gary Roles and provides a method to consistently characterize, classify and document packaged LLW. In this regard, it meets the requirements of 10CFR Part 61 as well as other guidelines and regulations relevant to LLW management.

To assist with your evaluation of this request, we have enclosed an Abstract, Table of Contents, and Section 1.0 - Introduction of the Topical. These materials as well as other sections of the Topical were discussed and reviewed with your staff.

We understand that the review will take several months and that we will be charged a fee in accordance with 10CFR Part 170.31, Special Projects. We discussed a maximum fee of $20,000 and a review schedule of about 3 months. Subject to your approval of this request for a review of RADMAN®, we would submit the Topical on or about September 30, 1982. We would appreciate your advising us of the estimated review time and fee for a Topical submittal on this date.

We trust this submittal contains all the information needed to act on this request but if additional information is needed, let me know.

Thanks for considering this request and I'll look forward to your reply.

Sincerely yours,
WASTE MANAGEMENT GROUP, INC.

Pete Tuite

Peter T. Tuite
Principal

PTT/ct
enclosure

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RADMAN® A COMPUTER CODE TO CLASSIFY AND DOCUMENT PACKAGED LLW IN ACCORDANCE WITH 10CFR PART 61 REGULATIONS

Report No. WMG-101P

September 1982

Topical Report

Prepared for

U. S. Nuclear Regulatory Commission

WASTE MANAGEMENT GROUP, inc.

ABSTRACT

This document describes the RADMAN® computer code which classifies and documents packaged radioactive waste in accordance with the requirements of 10CFR Part 61 regulations. RADMAN® operates on a waste specific data base composed of waste sample data, relative abundance of radionuclides, and package and waste characteristics, and calculates estimated package inventory by radionuclide from direct radiation measurements. RADMAN® includes provisions for regularly updating the waste specific data base, and provides the user a technically sound consistent methodology to estimate packaged waste radionuclide inventories, classify these wastes and document packaged waste content.

RADMAN® consists of five modules:

- Waste Classification Module - This module converts direct radiation readings to estimated package content, classifies package content as per 10CFR61 Table 1 and Table 2 limits, and prepares a package record.

- Inventory Module - This module stores individual package records for packaged and classified waste awaiting shipment to a disposal facility.

- Manifest Module - This module updates package records prior to shipment be decay correcting package content, classifies packages according to DOT shipment criteria and prepares the shipment manifest or RSR. This module also stores completed shipment manifests for retrieval and analysis.

- Reporting Module - This module prepares reports using the package information contained in the inventory and manifest files. It also prepares the radwaste shipment reports required by NRC Regulatory Guide 1.21

- Quality Assurance Module - This module verifies the waste specific data base and documents data base revisions.

Each of these modules are described. A typical waste specific data base is defined, the methodology used by RADMAN® to operate on this data base is described and computer printout based on this data base is presented. The methodology used to compile, verify, and regularly update a waste specific data base is also described.

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1.0 Introduction This document is the generic licensing Topical Report for the RADMAN® computer program. This program was developed by Waste Management Group, Inc. to provide radioactive waste generators a computer based methodology to characterize packaged radwaste, classify package content in accordance with 10CFR Part 61 criteria and prepare the documentation required by 10CFR Part 61, DOT and near surface disposal facility operators. The RADMAN® program described in this document was demonstrated for Mr. T. Johnson and Mr. G. Roles of the NRC on June 3, 1982 and this Topical Report was prepared as a result of this demonstration.

RADMAN® provides radwaste generators with a technically sound, consistent and cost effective tool to estimate packaged waste radionuclide content, classify these wastes according to 10CFR Part 61 criteria and prepare radwaste management documentation. It substantially reduces the manpower requirements currently needed to prepare radwaste shipment papers and reports and, with proper data base maintenance, essentially eliminates the human errors inherent in radwaste documentation.

1.1 Purpose The purpose of this Topical Report is to describe the design and operational characteristics of RADMAN® and thereby obtain approval from NRC and the State Agencies involved in regulation of near surface land disposal facilities to:

- Reference this document as a means of compliance with 10CFR Part 61 radwaste generator licensing and compliance actions before NRC.

- Reference this document in radwaste generator compliance actions with the regulatory agencies responsible for radwaste management in the States of South Carolina, Nevada, and Washington.

The term radwaste generators as used above refers to nuclear power plants and other nuclear facilities which regularly generate low level radioactive waste materials which are disposed of at near surface land disposal facilities.

1.2 Scope This Topical Report deals with the methodologies and calculational techniques incorporated into RADMAN® to operate on a radwaste data base and estimate packaged waste radionuclide content from direct gamma radiation measurements. The RADMAN® program can be used by any radwaste generator and its efficacy depends on the adequacy of the waste specific data base initially compiled when RADMAN® is installed and the regular updating of this data base by the user.

The design of RADMAN®, the operations it performs on a waste specific data base, and the methods used to compile and update the data base are described. A typical data base is defined and computer printout from the operation of RADMAN® on this data base is presented to illustrate RADMAN® operation and output.

1.3 Applicability RADMAN® can be used by any generator of radioactive waste to:

- Calculate packaged waste radionuclide content from direct gamma radiation measurements.
- Calculate radionuclide content in disposable demineralizer vessels.
- Classify packaged radwaste according to 10CFR Part 61 criteria.
- Provide a record of radwaste sampling activities and data.
- Maintain an inventory of packaged radwaste.
- Decay correct stored radwaste package content prior to shipment.
- Classify radwaste packages according to DOT package type criteria.
- Track packaged radwaste from generation through disposal.
- Prepare shipment manifests and disposal site RSR's.
- Prepare disposal site documentation for dewatered resin materials.
- Prepare Regulatory Guide 1.21 radwaste reports.
- Prepare internal reports on radwaste generation, inventory and shipment activities.

A nuclear facility which uses RADMAN® to support its radwaste management activities could use the program to perform any or all of the above functions.

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