

PDR per
James R. Ralje

COMMISSION
CORRESPONDENCE

7-23-85

TESTIMONY BEFORE THE
SUBCOMMITTEE ON ENERGY AND THE ENVIRONMENT
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS
UNITED STATES HOUSE OF REPRESENTATIVES

PRESENTED BY

JOHN G. DAVIS, DIRECTOR

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

ON BEHALF OF THE

U.S. NUCLEAR REGULATORY COMMISSION

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CONCERNING
CLASS C LOW-LEVEL WASTES

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SUBMITTED: JULY 23, 1985 M-12

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CORRESPONDENCE PDR

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MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE,

I AM JOHN G. DAVIS, DIRECTOR OF NRC'S OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS. AMONG MY RESPONSIBILITIES AS DIRECTOR OF THAT OFFICE IS THE RESPONSIBILITY FOR NRC ACTIVITIES IN LOW-LEVEL WASTE DISPOSAL.

I AM PLEASED TO BE APPEARING BEFORE YOU TODAY TO PROVIDE INFORMATION FOR YOUR CONSIDERATION REGARDING A PROPOSAL TO MAKE THE DISPOSAL OF CLASS C WASTES THE RESPONSIBILITY OF THE FEDERAL GOVERNMENT. AS I UNDERSTAND IT MR. CHAIRMAN, YOUR COMMITTEE IS PARTICULARLY INTERESTED IN UNDERSTANDING THE TYPES AND CHARACTERISTICS OF RADIOACTIVE MATERIAL THE COMMISSION HAS DEFINED AS CLASS C WASTES IN 10 CFR PART 61, NRC'S LOW-LEVEL RADIOACTIVE WASTE REGULATION FOR NEAR SURFACE DISPOSAL.

LET ME SAY AT THE OUTSET THAT THE COMMISSION STAFF KNOWS OF NO TECHNICAL REASONS WHY CLASS C WASTES CANNOT BE SAFELY DISPOSED OF ALONG WITH CLASSES A AND B WASTES AT COMMERCIAL LOW-LEVEL WASTE

DISPOSAL SITES LICENSED AND OPERATED UNDER THE REQUIREMENTS OF 10 CFR PART 61.

AS YOU KNOW, LOW-LEVEL RADIOACTIVE WASTE AS DEFINED IN THE LOW-LEVEL RADIOACTIVE WASTE POLICY ACT OF 1980 INCLUDES RADIOACTIVE WASTE NOT CLASSIFIED AS HIGH-LEVEL RADIOACTIVE WASTE, TRANSURANIC WASTE, SPENT NUCLEAR FUEL, OR URANIUM OR THORIUM TAILINGS AND WASTES AS DEFINED UNDER THE ATOMIC ENERGY ACT, AS AMENDED. IN THE COMMISSION'S REGULATION FOR LOW-LEVEL RADIOACTIVE WASTE DISPOSAL, 10 CFR PART 61, THE WASTES ARE CLASSIFIED INTO THREE CATEGORIES A, B, AND C, BASED ON ISOTOPIC CONCENTRATION AND HALF-LIFE. CLASS C WASTES IS NEAR THE UPPER END OF THE SPECTRUM OF WASTES THAT CAN BE DISPOSED OF ROUTINELY IN NEAR SURFACE DISPOSAL FACILITIES.

THE CLASSIFICATION SYSTEM IN 10 CFR 61 IS DESIGNED TO ENSURE THAT PUBLIC HEALTH AND SAFETY AS WELL AS THE ENVIRONMENT ARE PROTECTED. THE RELATIVE HAZARD OF THE WASTE IS TAKEN INTO ACCOUNT IN SETTING DISPOSAL REQUIREMENTS FOR THE VARIOUS WASTES. CLASS A WASTE IS BASICALLY HIGH VOLUME LOW ACTIVITY WASTE WHICH MAY BE CHARACTERIZED AS TRASH. CLASS B WASTE IS HIGHER ACTIVITY WASTE AND NEEDS SPECIAL TREATMENT AND/OR PACKAGING TO ENSURE PHYSICAL

STABILITY OF THE WASTE. CLASS C WASTES HAVE STILL HIGHER ACTIVITIES AND REQUIRE, IN ADDITION TO SPECIAL TREATMENT, SPECIAL DISPOSAL PRACTICES INCLUDING DEEPER BURIAL OR THE CONSTRUCTION OF SPECIAL INTRUDER BARRIERS. CLASS C WASTES GENERALLY CONSIST OF HIGH ACTIVITY SEALED RADIOACTIVE SOURCES USED IN VARIOUS INDUSTRIAL APPLICATIONS; ACTIVATED STRUCTURAL MATERIALS FROM NUCLEAR REACTORS; WASTES FROM MEDICAL ISOTOPE PRODUCTION FACILITIES; AND VARIOUS REACTOR WASTES SUCH AS RESINS, FILTER CARTRIDGES, AND SLUDGES.

BECAUSE THE WASTE CLASSIFICATION SYSTEM HAS JUST RECENTLY BEEN IMPLEMENTED AT THE EXISTING SITES, VERY LITTLE DATA IS AVAILABLE CONCERNING THE SPECIFIC ACTIVITY OF CLASS C WASTE WITH RESPECT TO OTHER CLASSES OF WASTE. ESTIMATES IN SUPPORT OF THE PART 61 RULEMAKING SUGGESTED THAT WHILE CLASS C WASTE COMPRISED 1% OF THE VOLUME OF ALL WASTE IT MAY COMPRISE UP TO 80% OF THE ACTIVITY AT THE TIME OF DISPOSAL.

BASED ON LIMITED ACTUAL EXPERIENCE FOR THE EXISTING SITES ABOUT 1% BY VOLUME OF THE NATION'S 2.6 MILLION CUBIC FEET OF LOW-LEVEL WASTE IS CURRENTLY BEING DISPOSED OF AS CLASS C WASTE. IN THE FUTURE THESE PROPORTIONS ARE LIKELY TO CHANGE SOMEWHAT DUE TO

ADDITIONAL WASTES FROM DECOMMISSIONING OF POWER PLANTS AND IMPLEMENTING VOLUME REDUCTION TECHNIQUES WHICH RESULT IN CONCENTRATING THE WASTE.

IT SHOULD BE NOTED THAT MANY STUDIES WERE UNDERTAKEN BY NRC AND ITS CONTRACTORS TO ENSURE THAT THE PUBLIC HEALTH AND SAFETY WOULD BE PROTECTED FOR ANY WASTE DISPOSED OF UNDER 10 CFR PART 61. THE ENVIRONMENTAL IMPACT STATEMENT (EIS) SUPPORTING THE DEVELOPMENT OF PART 61 AND ITS CLASSIFICATION SYSTEM INCLUDED EXTENSIVE ANALYSIS OF POTENTIAL RADIONUCLIDE RELEASE PATHWAYS FOR VARIOUS LOW-LEVEL WASTES. THIS ANALYSIS ALSO ADDRESSED COMMENTS RECEIVED FROM THE STATES, INDUSTRY, OTHER FEDERAL AGENCIES AND INTERESTED MEMBERS OF THE PUBLIC DURING THE THREE YEARS IN WHICH NRC WAS ENGAGED IN THIS RULEMAKING. BASED ON THIS WORK, IT WAS CONCLUDED THAT LOW-LEVEL WASTES, CLASSES A, B, AND C CAN BE SAFELY DISPOSED OF BY AVAILABLE NEAR-SURFACE DISPOSAL TECHNOLOGY IN A MANNER THAT PROTECTS PUBLIC HEALTH AND SAFETY, PROVIDED THAT THE REQUIREMENTS OF PART 61 ARE MET. WE KNOW OF NO NEW INFORMATION WHICH WOULD CHANGE THESE CONCLUSIONS.

HOWEVER, AS A PART OF ANY LEGISLATIVE CLARIFICATION, IF RESPONSIBILITY FOR ADDITIONAL WASTES IS ASSIGNED TO THE FEDERAL GOVERNMENT, WE BELIEVE IT IS IMPORTANT THAT THE ACT DEFINE HOW THIS RESPONSIBILITY IS TO BE CARRIED OUT BY THE FEDERAL AGENCIES INVOLVED. MOST PARTICULARLY, THE ACT SHOULD SPECIFY WHETHER IT

IS INTENDED THAT THE NRC LICENSE THE FEDERAL AGENCY WHICH MAY BE DESIGNATED TO HAVE OPERATIONAL RESPONSIBILITY FOR THE WASTE DISPOSAL.

THIS CONCLUDES MY PREPARED TESTIMONY.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555


July 22, 1985

The Honorable Peter H. Kostmayer
United States House of Representatives
Washington, D.C. 20515

Dear Congressman Kostmayer:

We are pleased to respond to your letter of July 8, 1985 requesting information on Class C radioactive waste. The NRC staff's responses to your inquiry are enclosed.

Sincerely,


Carlton Kammerer, Director
Office of Congressional Affairs

Enclosure:
As stated

QUESTION 1. IF CLASS C WASTE BECAME THE RESPONSIBILITY OF THE
FEDERAL GOVERNMENT, DOES THE FEDERAL GOVERNMENT
HAVE SUFFICIENT CAPACITY TO DISPOSE OF CURRENT
CLASS C WASTE GENERATED FROM EACH STATE?

ANSWER.

THE DEPARTMENT OF ENERGY (DOE) CURRENTLY OPERATES DISPOSAL
FACILITIES FOR LOW-LEVEL WASTE GENERATED AS A RESULT OF THAT
DEPARTMENT'S ACTIVITIES. THE COMMISSION DOES NOT REGULATE THESE
FACILITIES AND CONSEQUENTLY DOES NOT MAINTAIN INFORMATION ON
AVAILABLE DISPOSAL CAPACITY. WE UNDERSTAND THAT DOE WILL BE
PROVIDING INFORMATION TO THE COMMITTEE IN THIS REGARD.

QUESTION 2. IN THE OPINION OF THE NUCLEAR REGULATORY COMMISSION, DOES THE DISPOSAL OF CLASS C WASTE VIA SHALLOW-LAND BURIAL POSE ANY PUBLIC HEALTH OR ENVIRONMENTAL HAZARDS?

ANSWER.

THE NRC STAFF IS CONFIDENT THAT DISPOSAL OF CLASS C LOW-LEVEL WASTE CAN BE SAFELY ACCOMPLISHED BY AVAILABLE SHALLOW-LAND BURIAL TECHNOLOGY IN A MANNER THAT ADEQUATELY PROTECTS PUBLIC HEALTH AND SAFETY, PROVIDED THAT THE REQUIREMENTS OF 10 CFR PART 61 ARE MET. PART 61 SETS FORTH "LICENSING REQUIREMENTS FOR THE LAND DISPOSAL OF RADIOACTIVE WASTE." PART 61 PROVIDES A SYSTEM FOR CLASSIFYING LOW-LEVEL WASTE BASED ON RADIONUCLIDE CONCENTRATION AND HALF-LIFE, AND SPECIFIES DISPOSAL REQUIREMENTS ACCORDING TO THE CLASSIFICATION SYSTEM. PART 61 ALSO REQUIRES THAT THE DISPOSAL SITE BE PROPERLY SELECTED, OPERATED, CLOSED AND MAINTAINED TO ENSURE THAT SPECIFIED PERFORMANCE OBJECTIVES ARE MET. CLASS C WASTE PACKAGES MUST MEET STRUCTURAL STABILITY REQUIREMENTS, AND MUST BE DISPOSED OF AT SUFFICIENT DEPTH OR BENEATH A SUITABLE BARRIER TO PROTECT AGAINST POSSIBLE INADVERTENT INTRUSION. CLASS C WASTES ARE CURRENTLY BEING PROPERLY DISPOSED OF AT EXISTING FACILITIES.

QUESTION 3. HOW WOULD YOU COMPARE THE PUBLIC HEALTH AND ENVIRONMENTAL HAZARDS OF CLASS C WASTE TO A AND B WASTE AND HIGH-LEVEL RADIOACTIVE WASTE?

ANSWER.

PRIOR TO DISPOSAL, CLASS A WASTE POSES THE LEAST HAZARDS. CLASS B WASTE, CLASS C WASTE, AND HIGH-LEVEL RADIOACTIVE WASTE POSE SUCCESSIVELY GREATER HAZARDS. ONCE PROPERLY DISPOSED, EACH CLASS OF WASTE IS INTENDED TO POSE AN ACCEPTABLE RISK LEVEL.

AS NOTED ABOVE, 10 CFR PART 61 ESTABLISHES A CLASSIFICATION SYSTEM FOR LOW-LEVEL WASTES BASED ON RADIONUCLIDE HALF-LIFE AND CONCENTRATION LIMITS. CLASSES A, B, AND C, ARE ESTABLISHED FOR LOW-LEVEL WASTE, WITH CLASS A REPRESENTING THE LESSER HAZARD. UNDER PART 61, LAND DISPOSAL OF LOW-LEVEL WASTE IS REQUIRED TO MEET SPECIFIC PERFORMANCE OBJECTIVES THAT LIMIT THE RISK POSED BY BURIED WASTE TO ACCEPTABLE LEVELS. CONCENTRATIONS OF RADIOACTIVE MATERIAL WHICH MAY BE RELEASED TO THE GENERAL ENVIRONMENT MUST NOT RESULT IN AN ANNUAL DOSE EXCEEDING AN EQUIVALENT OF 25 MILLIREMS TO THE WHOLE BODY, 75 MILLIREMS TO THE

THYROID, OR 25 MILLIREMS TO ANY OTHER ORGAN OF ANY MEMBER OF THE PUBLIC. PART 61 ESTABLISHES DIFFERENT HANDLING AND DISPOSAL REQUIREMENTS FOR CLASSES A, B AND C WASTE TO ENSURE THAT THE DISPOSAL FACILITY WILL MEET THIS STRINGENT PERFORMANCE OBJECTIVE.

QUESTION 4.

HOW DOES THE RADIOACTIVE WASTE CLASSIFICATION SYSTEM IN THIS COUNTRY COMPARE TO THAT OF EUROPEAN COUNTRIES AND HOW DO YOU ACCOUNT FOR THE DIFFERENCES?

ANSWER.

A VARIETY OF TERMS AND CLASSIFICATION SYSTEMS ARE USED IN OTHER COUNTRIES TO DEFINE RADIOACTIVE WASTE BY SOURCE OR CHARACTERISTIC. NUMEROUS TERMS ARE USED TO DESCRIBE WASTE CONSIDERED LOW-LEVEL IN THE UNITED STATES (INTERMEDIATE LEVEL WASTES, LOW HEAT, LOW SPECIFIC ACTIVITY, SHORT-LIVED, ETC.) FOR EXAMPLE, "INTERMEDIATE-LEVEL" MAY DESCRIBE LOW-LEVEL WASTES REQUIRING SHIELDING TO PROTECT WORKERS FROM EXPOSURE TO RADIATION. CURRENT PRACTICES EMPLOYED FOR MANAGING LOW-LEVEL WASTE ALSO VARY CONSIDERABLY AMONG NATIONS--INCLUDING ABOVE-GROUND STORAGE PENDING FUTURE DISPOSAL, AND VARIOUS LAND BURIAL CONFIGURATIONS. INDEFINITE STORAGE AND SHALLOW-LAND BURIAL ARE BY FAR THE MOST COMMON MANAGEMENT METHODS.

FOR THOSE NATIONS THAT USE WASTE CLASSIFICATION SYSTEMS, THE RADIATION PROTECTION STANDARDS SET FORTH BY THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION ARE A PRIME CONSIDERATION. HOWEVER, DIRECT COMPARABILITY IS DIFFICULT. FRANCE IS BELIEVED TO HAVE THE CLASSIFICATION AND DISPOSAL SYSTEM MOST COMPARABLE TO THE UNITED STATES. NEAR-SURFACE DISPOSAL IS PRACTICED IN BOTH COUNTRIES.

QUESTION 5. DOES THE COMMISSION CURRENTLY LICENSE FEDERAL RADIOACTIVE WASTE DISPOSAL FACILITIES? IF SO, WILL THE LICENSING PROCEDURES FOR FUTURE COMPACT WASTE DISPOSAL FACILITIES BE SIMILAR TO THOSE USED NOW FOR FEDERAL WASTE DISPOSAL FACILITIES? IF THE COMMISSION DOES NOT LICENSE FEDERAL RADIOACTIVE WASTE DISPOSAL SITES, WHY NOT?

ANSWER.

UNDER PRESENT LAW, ASSUMING THAT THE DEPARTMENT OF ENERGY (DOE) WOULD BE THE RESPONSIBLE AGENCY, THE NRC HAS NO JURISDICTION TO REGULATE THE DISPOSAL OF LOW-LEVEL WASTE BY DOE.

THE REQUIREMENTS OF PART 61 APPLY TO ANY COMMERCIAL NEAR SURFACE DISPOSAL OPERATION COMING UNDER NRC JURISDICTION. NRC HAS LICENSING AUTHORITY FOR STATE AND COMPACT DISPOSAL FACILITIES NOT UNDER AGREEMENT STATE JURISDICTION (SECTION 274B OF THE ATOMIC ENERGY ACT, AS AMENDED). AGREEMENT STATES REGULATIONS ARE TO BE COMPATIBLE WITH NRC REGULATIONS.

AS NOTED ABOVE, DOE OPERATES LOW-LEVEL WASTE DISPOSAL FACILITIES TO MANAGE WASTES PRODUCED AS A RESULT OF THAT DEPARTMENT'S ACTIVITIES. THESE FACILITIES ARE PRIMARILY USED TO DISPOSE OF WASTES GENERATED AS A RESULT OF FEDERAL DEFENSE ACTIVITIES, AND ARE NOT INTENDED FOR THE DISPOSAL OF COMMERCIALY-GENERATED WASTE OR ANY OTHER WASTE PRODUCED BY NRC LICENSEES. ANY OTHER FEDERAL AGENCY WOULD BE A "PERSON" UNDER THE ATOMIC ENERGY ACT, AND WOULD THUS BE UNDER NRC REGULATORY JURISDICTION.