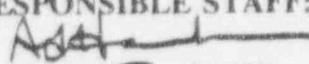
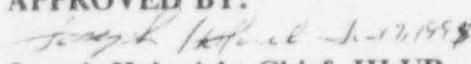
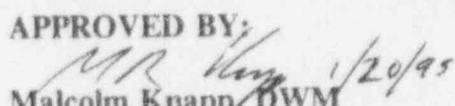
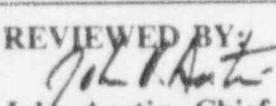


**URANIUM RECOVERY PROGRAM
POLICY AND GUIDANCE DIRECTIVE
DWM 94-01**

**DRAFT FINAL STAFF TECHNICAL POSITION
ALTERNATE CONCENTRATION LIMITS
FOR
TITLE II URANIUM MILLS**

February 1994

RESPONSIBLE STAFF:  Latif Hamdan, PAHB	APPROVED BY:  1-17-1995 Joseph Holonich, Chief, HLUR
REVIEWED BY:  David Brooks, PAHB	APPROVED BY:  1/20/95 Malcolm Knapp, DWM
REVIEWED BY:  John Austin, Chief, PAHB	EFFECTIVE UNTIL: 10/96 Reevaluation Scheduled 6/96

DWM 94-01

APPROVED: January 20, 1995

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PURPOSE:

The Draft Technical Position (DTP) provides: (1) guidance for the NRC staff's interpretation of the requirements for establishing alternate concentration limits (ACLs) according to Criterion 5B(6), Appendix A, 10 CFR Part 40; (2) a standard format and content for ACL license applications; and (3) consistent NRC staff review procedures for ACL applications.

DISCUSSION:

NRC regulations for Title II uranium mill tailings sites in Appendix A to 10 CFR Part 40 require (Criterion 5B(5)) that groundwater protection standards be established for site-specific constituents, at the point of compliance, as: (1) background water quality; (2) groundwater protection levels in Table 5C of Appendix A, which correspond to EPA's maximum concentration levels (MCLs); or (3) ACLs.

Criterion 5B(6) requires that licensees meet the following two broad conditions in establishing ACLs at particular sites: (1) proposed ACLs represent concentration levels as low as reasonably achievable (ALARA), after consideration of practicable corrective actions; and, (2) constituents do not pose a substantial present or potential hazard to human health or the environment as long as the ACLs are not exceeded.

The DTP describes and discusses two major assessments needed to support a proposed ACL: (1) a hazard assessment; and (2) a corrective action assessment. The DTP provides guidance to the staff in reviewing an ACL application. The DTP also provides guidance for licensees preparing ACL applications, including methodologies and procedures that the staff finds acceptable to support an ACL assessment.

The availability, for comment, of the DTP was noticed in the Federal Register on March 21, 1994. It is anticipated that the Technical Position will be finalized by June 1995.

Until it is replaced by the final Technical Position, the DTP should be used in the review of proposed ACLs for Title II sites. If the ACL application meets the provisions of this DTP, the staff should approve the ACL.

LIMITATIONS:

The DTP does not identify the maximum annual individual risk permitted in approving an ACL. That value had been the subject of discussions between NRC and EPA that resulted in resolution of this issue after publication of the DTP. As a result, when using the DTP to assess a proposed ACL, the staff will comply with the following guidance: When considering the potential for health risks from human exposure to known or suspected carcinogens in the use of

groundwater for drinking purposes, an ACL would be acceptable if it does not pose an excess lifetime risk to an average exposed individual on the order of 10^{-4} or more from individual constituents.

**PAGES
IN REFERENCED
DOCUMENT:**

32 pages.

**BIBLIOGRAPHIC
CITATION:**

"Alternate Concentration Limits for Title II Uranium Mills,"
Draft Final Staff Technical Position, February 1994.

**RESPONSIBLE
STAFF:**

Latif Hamdan, PAHB, 301-415-6639

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- LLWM-4 Description of Policy and Guidance Directives

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- 73-01 "Occupational Radiation Exposure Records Systems," Reg. Guide 8.7, May 1973. Superseded 92-06
- 73-02 "Guide for Administrative Practices in Radiation Monitoring," Reg. Guide 3.2, February 1973.
- 73-03 "Acceptable Concepts, Models, Equations, and Assumptions for a Bioassay Program," Reg. Guide 8.9, September 1973.
- 76-01 "Acceptable Programs for Respiratory Protection," Reg. Guide, 8.15, October 1976.
- 77-01 "Design, Construction, and Inspection of Embankment Retention Systems for Uranium Mills," Reg. Guide 3.11, Rev. 2, December 1977.
- 77-02 "Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As Is Reasonably Achievable," Rev. 1-R, Reg. Guide 8.10, May 1977.
- 78-01 "Preoperational Radiological Environmental Monitoring Programs for Uranium Mills, Fuel Proc. and Fab. Br., January 1978.

LLWM-1

ISSUED: January 20, 1995

- 85-01 "Standard Review Plan for UMTRCA Title I Mill Tailings Remedial Action Plans," October 1985. SUPERSEDED BY 92-09
- 86-01 "Inspections of Remedial Action at Inactive Uranium Mill Tailings Sites," (Title I UMTRCA), Chapter 2620, Inspection and Enforcement Manual, March 1986. SUPERSEDED BY 93-01.
- 86-02 "General Guidance for Designing, Testing, Operating and Maintaining Emission Control Devices at Uranium Mills," Reg. Guide 3.56, May 1986.
- 86-03 "Establishing Quality Assurance Programs for Packaging Used in the Transport of Radioactive Material," Rev. 1, Reg. Guide 7.10, June 1986.
- 87-01 "Regulation of Ground-Water Contaminants and In-Situ Uranium Solution Mining," Memorandum M.R. Knapp to R.D. Smith, May 1987.
- 87-02 "Methods for Estimating Radioactive and Toxic Airborne Source Terms for Uranium Milling Operations," Reg. Guide 3.59, March 1987.
- 87-03 "Instruction Concerning Prenatal Radiation Exposure," Rev. 2, Reg. Guide 8.13, December 1987.
- 88-01 "Information Needs to Demonstrate Compliance with EPA's Proposed Groundwater Protection Standards in 40 CFR Part 192, Subparts A-C," LLWM/LLTB, June 1988. SUPERSEDED BY 89-03.
- 88-02 "Alternate Concentration Limits for Uranium Mills- Standard Format and Content Guide and Standard Review Plan for Alternate Concentration Limit Applications," LLWM/LLtb, June 1988. SUPERSEDED BY 94-01.
- 88-03 "Management Position on Uranium Mill Tailings Reclamation," LLWM/LLOB, November 1988. SUPERSEDED BY 89-01.
- 88-04 "Financial Assurances for Reclamation, Decommissioning, and Long-Term Surveillance and Control of Uranium Recovery Facilities," LLWM, October 1988.

- 92-02 "Assessments and Audits: Low Level Waste Management (LLWM) Participation in Agreement State Reviews," LLWM, February 1992.
- 92-03 "Interim Guidance on Evaluation Procedure for Hydraulic Conductivity of Radon/Infiltration Barriers for Title I and Title II Mill Tailings Sites," Memorandum from J.J. Surmeier to R.E. Hall, April 9, 1992.
- 92-04 "Guiding Principals for EPA-NRC Cooperation and Decisionmaking," March 1992.
- 92-05 "Air Sampling in the Workplace," Reg. Guide 8.25, Rev. 1, June 1992.
- 92-06 "Instructions for Recording and Reporting Occupational Radiation Exposure Data," Reg. Guide 8.7, Rev. 1, June 1992.
- 92-07 "Radiation Dose to the Embryo/fetus," Reg. Guide 8.36, July 1992.
- 92-08 "Monitoring Criteria and Methods to Calculate Occupational Radiation Doses," Reg. Guide 8.34, July 1992.
- 92-09 "Standard Review Plan for UMTRCA Title I Mill Tailings Remedial Action Plans," Revision 1, LLWM, October, 1992. ~~SUPERSEDED BY 93-02.~~
- 92-10 "ALARA Levels For Effluents From Materials Facilities," Draft Reg. Guide DG-8013, October 1992.
- 93-01 "On-Site Construction Reviews of Remedial Action At Inactive Uranium Mill Tailings Sites," Chapter 2620, Inspection and Enforcement Manual, Rev. 1, February 1993.
- 93-02 "Standard Review Plan for the Review of Remedial Action of Inactive Mill Tailings Sites Under Title I of the Uranium Mill Tailings Radiation Control Act," Rev. 1, June 1993.
- 94-01 "Alternate Concentration Limits for Title II Uranium Mills," Draft Final Staff Technical Position, February 1994.

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DESCRIPTION OF POLICY AND GUIDANCE DIRECTIVES

LLWM Directive Number

- LLWM-1 Table of contents for UR Directive System
- DWM-2 "Uranium Recovery Program Policy and Guidance Directive System"
- LLWM-3 Subject Index
- LLWM-4 Description of Policy and Guidance Directives
- 73-01 This guide describes an acceptable program for the systematic generation and retention of records by licensees relating to occupational exposure.
Superseded 92-06
- 73-02 This guide provides general information on radiation monitoring programs for management and administrative personnel, to assist the licensee to meet the requirements of 10 CFR Part 40.
- 73-03 This guide presents references, satisfactory to the NRC staff, to publications of the International Commission on Radiological Protection that contain guidance on the protection of personnel from intake of radioactive materials.
- 76-01 This guide describes the elements of respiratory protection programs acceptable to NRC for the use of respiratory protective equipment in estimating exposures of individuals to airborne radioactive materials.
- 77-01 This guide describes engineering practices and methods generally considered satisfactory for the design, construction, and inspection of earth and rockfill embankments used for retaining uranium mill tailings.
- 77-02 This guide describes an operating philosophy acceptable to NRC staff for a program of maintaining occupational exposures to radiation as low as is reasonably achievable (ALARA).
- 78-01 Provides guidance for establishing preoperational radiological baseline data for uranium mills.
- 78-02 Provides guidelines for information required in an application for a uranium ore-buying license where crushing or other processing is used.

- 86-02 This guide describes procedures acceptable to the NRC staff for designing, testing, operating, and maintaining emission control devices to ensure the reliability of their performance.
- 86-03 This guide provides guidance to applicants and licensees on establishing quality assurance programs for the packaging used in the transport of radioactive material.
- 87-01 Provides guidance for the regulation of groundwater contaminants at in-situ leach mines.
- 87-02 This guide addresses methods, models, data, and assumptions acceptable to the NRC staff for estimating airborne emissions of radioactive and toxic materials from uranium milling.
- 87-03 This guide describes the instructions an employer should provide to workers and supervisors concerning biological risks to the embryo/fetus and suggestions for reducing radiation exposure.
- 88-01 Provides information needed to demonstrate compliance with EPA groundwater standards. **SUPERSEDED BY 89-03**
- 88-02 Standard format and content guide for Alternate Concentration Limit applications. **SUPERSEDED BY 94-01**
- 88-03 Describes a position on taking credit for maintenance in meeting EPA and NRC regulations for reclamation of uranium mill tailings. **SUPERSEDED BY 89-01**
- 88-04 Provides guidance for establishing and maintaining financial assurance for reclamation, decommissioning, and long-term surveillance and control of uranium facility sites.
- 88-05 This guide provides guidance acceptable to the NRC staff regarding meteorological parameters that should be measured, the siting of meteorological instruments, system accuracies, instrument maintenance and servicing schedules, and the recovery, reduction, and compilation of data.
- 88-06 This guide provides guidance for conducting a site screening investigation for disposal of low-level waste.
- 88-07 This guide describes a bioassay program acceptable to the NRC staff for uranium mills including exposure conditions with and without respiratory protection devices.
- 88-08 Provides guidance for the use of Title I supplemental standards for off-site cleanup at Title II sites.

- 92-08 This guide provides acceptable criteria that may be used by licensees to determine whether monitoring is needed and to provide methods for calculating and summing external and internal doses to demonstrate compliance with the dose limits in 10 CFR 20.1201a)(1) for adults and 10 CFR 20.1207 for minors.
- 92-09 Provides a standard review plan for Title I Remedial Action Plans. **SUPERSEDED BY 93-02.**
- 92-10 Provides guidance on designing an acceptable program for establishing and maintaining ALARA levels for gaseous and liquid effluents at materials facilities.
- 93-01 Provides guidance for construction reviews of remedial actions at Title I sites.
- 93-02 Provides a standard review plan for Title I Remedial Action Plans which is also to be used for Title II reviews to the extent practicable.
- 94-01 Provides guidance on the use of alternate concentration limits for ground water protection at Title II sites.