

FINAL
COMPLETION REVIEW REPORT

FOR THE

REMEDIAL ACTION
AT THE

AMBROSIA LAKE, NEW MEXICO
URANIUM MILL TAILINGS SITE

May 1997

DIVISION OF WASTE MANAGEMENT
U.S. NUCLEAR REGULATORY COMMISSION

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AMBROSIA LAKE, NEW MEXICO FINAL COMPLETION REVIEW REPORT

INTRODUCTION

The Ambrosia Lake site is one of the 24 abandoned uranium mill tailings sites to be remediated by the U.S. Department of Energy (DOE) under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). UMTRCA requires, pursuant to Section 104(f)(1), that the U.S. Nuclear Regulatory Commission concur with the DOE's determination that the remedial action has been properly completed. This final Completion Review Report (CRR) documents the NRC staff's basis for its concurrence decision with respect to DOE's Certification Summary for the completion of the Ambrosia Lake site.

1.0 BACKGROUND

1.1 UMTRCA

Title I of UMTRCA provides for remedial action at abandoned uranium mill tailings sites and associated vicinity properties. The purpose of this legislation is to protect the public health and safety and the environment from radiological and non-radiological hazards associated with the process related materials at these sites.

UMTRCA directs DOE to select and perform remedial actions at 24 abandoned uranium mill tailings sites to ensure compliance with the general environmental standards promulgated by the Environmental Protection Agency (EPA) under Section 275(a) of the Atomic Energy Act of 1954, as amended by UMTRCA. UMTRCA also requires DOE to obtain NRC's concurrence with DOE's selection and performance of the remedial actions. Following completion of the remedial actions, UMTRCA authorizes NRC to license the long-term custody, maintenance, and monitoring of the disposal sites to ensure continued protection of the public health and safety and the environment. Appendix B includes a more detailed discussion of this legislation.

1.2 CONCURRENCE PROCESS FOR THE SELECTION OF DOE'S REMEDIAL ACTIONS

To document its selection of the remedial action to be implemented at a particular site, DOE develops and issues a Remedial Action Plan (RAP) under the Uranium Mill Tailings Remedial Action (UMTRA) project. The RAP describes the series of activities and presents the design proposed by DOE to provide for the long term protection of the public and the environment. Usually this involves cleanup of the processing site, adjacent windblown areas, and vicinity properties in addition to stabilization of the residual radioactive materials. In addition, DOE issues a Remedial Action Inspection Plan (RAIP), which establishes the quality control program of testing and inspection that

will be employed for the remedial action. In accordance with UMTRCA Section 108(a)(1), the NRC staff reviews and concurs with the RAP and the RAIP, and any subsequent modifications. By its concurrence in the remedial action selection, the NRC staff concludes that the planned remedial actions will comply with EPA's applicable standards in 40 CFR 192, Subparts A, B, and C. The basis for the concurrence in DOE's selection of remedial action is documented in a Technical Evaluation Report (TER).

1.3 CONCURRENCE PROCESS FOR THE PERFORMANCE OF DOE'S REMEDIAL ACTIONS

The remedial action work is performed by DOE contractors under Federal procurement regulations. During construction, DOE inspects and documents activities in accordance with the UMTRA Project Quality Assurance Plan, the RAIP, and the RAP. In addition, the NRC staff conducts independent inspections during construction, as determined necessary.

Upon completion of the remedial action, DOE compiles construction records and prepares a completion report to document that remedial actions were performed in accordance with the RAP or RAP modifications, and the RAIP. Based on this information, DOE certifies that all provisions of the RAP have been satisfied and, therefore, that the remedial actions comply with the applicable EPA standards in 40 CFR 192.

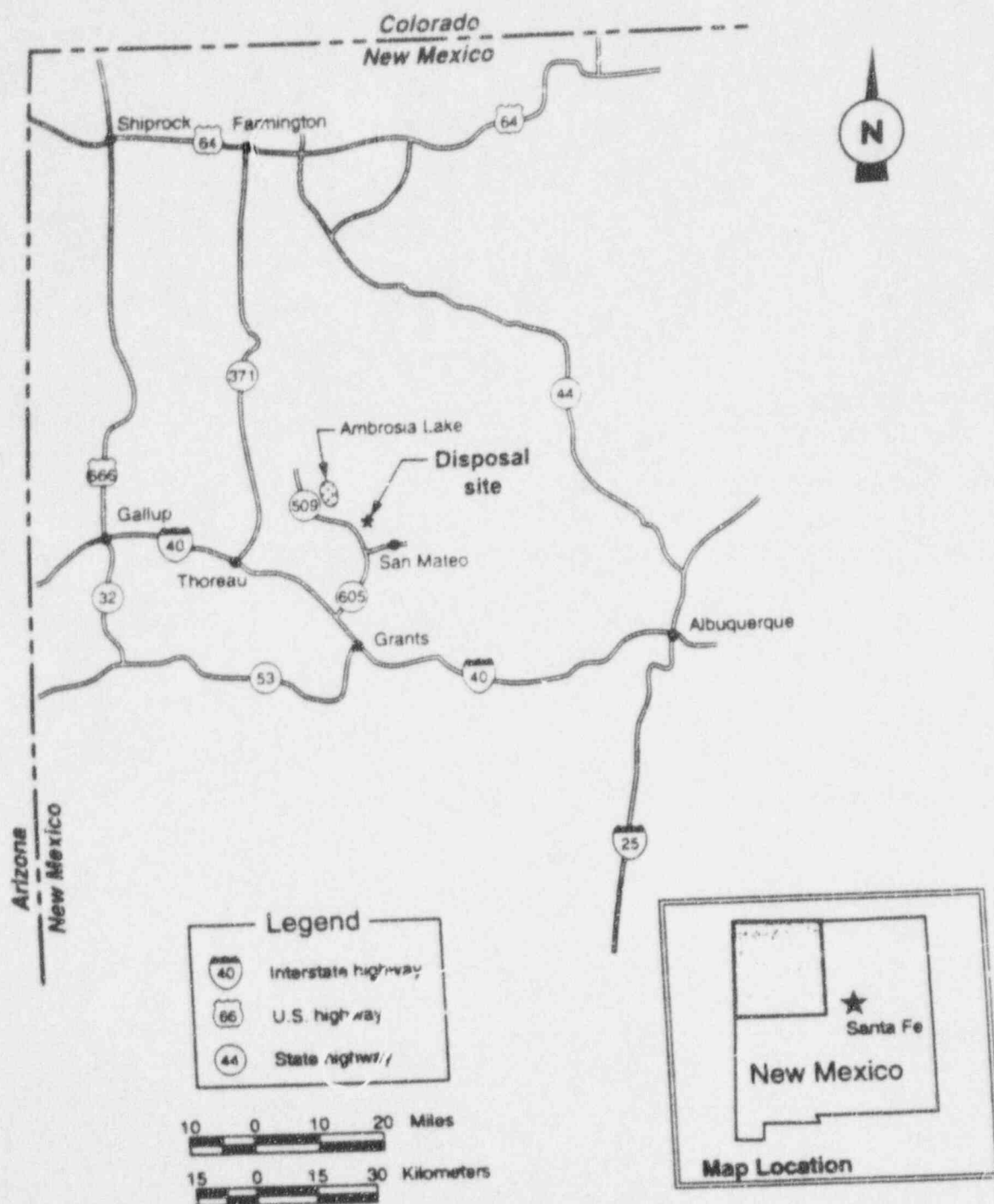
Based on its review of DOE's documentation, and on its site visits and observations, NRC makes a concurrence decision with regard to DOE's remedial action completion determination for each site, and then documents the basis for this concurrence decision in the CRR. By its concurrence in the remedial action performance, the NRC staff concludes that the remedial action has been completed in accordance with the NRC approved design. NRC's concurrence with DOE's completion determination fulfills the Commission's responsibility under UMTRCA Section 104(f)(1).

1.4 AMBROSIA LAKE SITE

The inactive Phillips/United Nuclear Mill and tailings pile, known as the Ambrosia Lake Site, is in McKinley County in northwest New Mexico. The site is 25 road miles north of Grants, New Mexico (Figure 1.1). The site is in a valley within the Ambrosia Lake portion of the Grants mineral belt, a major uranium production region. This valley is drained by the Arroyo del Porto, an ephemeral stream that derives most of its flow from mine-water and mill-water discharge treated elsewhere.

Constructed in 1957, the Phillips Mill was operated by Phillips Petroleum

Figure 1.1
Location Map, Ambrosia Lake, New Mexico, Site



Company from June, 1958, until March, 1963. Three million tons of uranium ore from nearby mines, averaging 0.23 percent uranium oxide, were processed during the five-year operational period of the mill. The Phillips Mill utilized an alkaline pressure leach process to extract uranium from the ore. Three million tons of tailings were produced during the milling operation. An estimated 396,000 tons of tailings were removed from the site and used as underground mine fill. Following the purchase by United Nuclear Corporation, all mining and milling operations were scaled back and milling ceased in April 1963. United Nuclear Corporation used parts of the mill site as a resin ion exchange facility until late 1982, when all uranium recovery operations ceased.

The Ambrosia Lake disposal site is roughly rectangular in shape and has an east-west length of about 4200 feet and a north-south width of about 2900 feet. The base of the tailings pile is almost square. The tailings and other contaminated materials (including windblown) are covered with a layer of compacted earth to inhibit radon emanation and water infiltration and an outer layer of rock for erosion protection. The perimeter of the disposal site is marked with warning signs, boundary markers, and survey monuments (Figure 1.2).

The NRC was not involved with the actual remedial action activities which were performed by the DOE contractors. However, DOE obtained NRC concurrence with the site construction design and a few significant modifications thereof as Project Interface Documents (PIDs). NRC also performed on-site reviews to monitor the progress of the remedial action activity (see Appendix A).

1.5 COMPLETION REVIEW REPORT ORGANIZATION

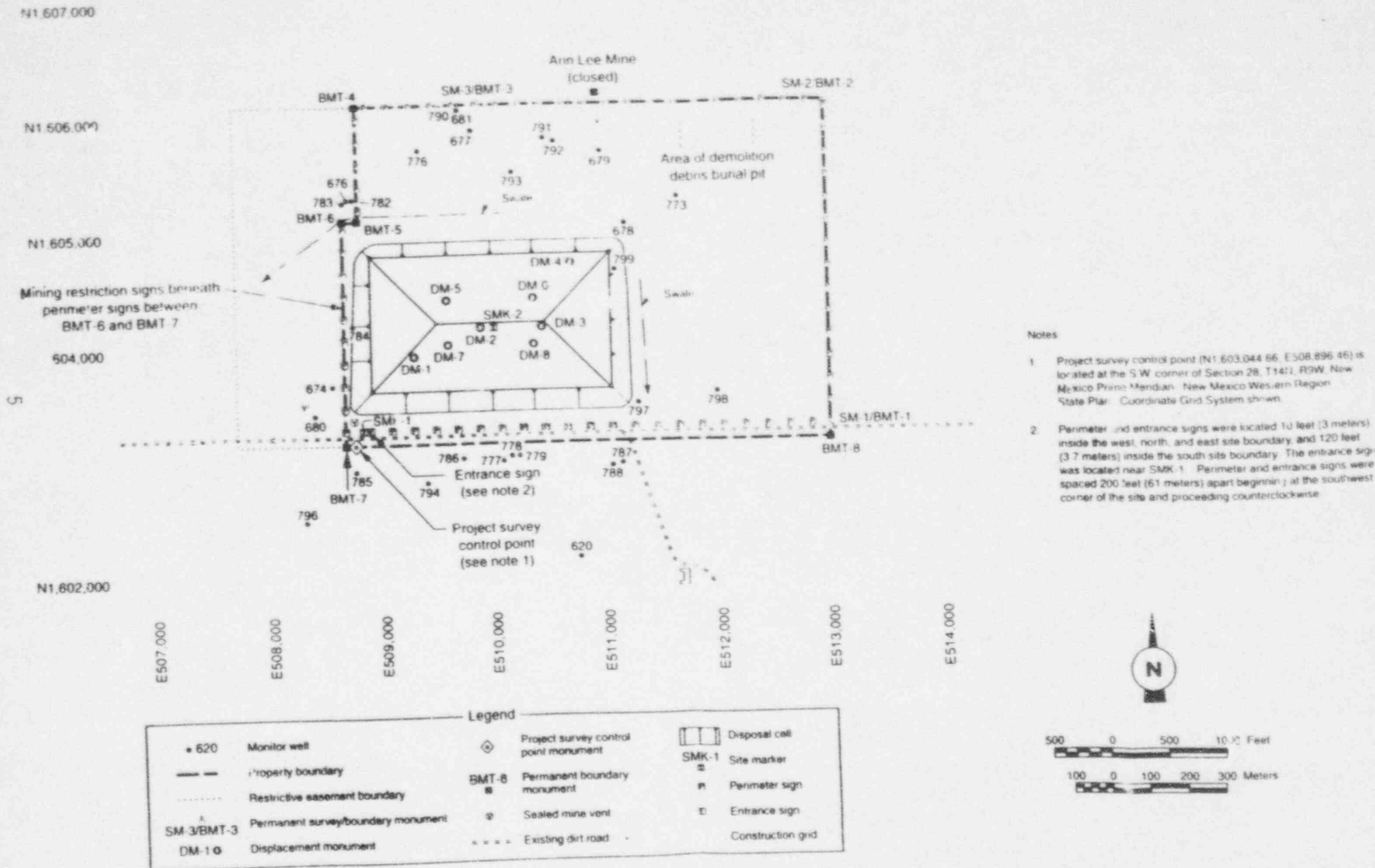
The purpose of this CRR is to document the NRC staff review of DOE's Ambrosia Lake Completion Report (CR). Section 2 of this report presents the analysis of remedial action construction. This section is organized by technical discipline and addresses engineering and radiation protection aspects of the remedial action. Appendix A provides a listing of NRC staff visits to the Ambrosia Lake site. Appendix B provides a detailed description of the requirements of UMTRCA and the resulting phased process of the UMTRA project.

2.0 ANALYSIS OF DOE REMEDIAL ACTION PERFORMANCE

2.1 PREVIOUS ACTIONS

NRC staff, based on its review of the RAP (DOE, 1990) and the RAIP (MK-F, 1989), concurred that the remedial action, as designed, would meet the

Figure 1.2
Disposal Site
Ambrosia Lake, New Mexico



applicable EPA standards. This concurrence was based on technical findings that there is reasonable assurance that the selection of the remedial action would meet the standards for long-term stability, radon attenuation, water resources protection, and cleanup of contaminated land and buildings.

Staff reviews included assessments in the areas of geology, geotechnical engineering, surface water hydrology, and health physics. The NRC concurred on the final RAP and the RAIP on December 31, 1990. The basis for the NRC staff's concurrence in DOE's selection of remedial action at the Ambrosia Lake site is documented in the TER issued in August, 1990 (NRC, 1990).

2.2 REVIEW OF REMEDIAL ACTION PERFORMANCE

NRC staff's primary objective in reviewing DOE's certification of remedial action completion is to determine whether the remedial actions have been performed in a manner consistent with specifications provided in the RAP, RAP modifications or PIDs, and the RAIP, and if not, that deviations to these specifications still result in compliance with the EPA standards. In support of this action, the NRC staff participated in site reviews (See Appendix A), field observations, assessments of on-site data and records, and review of DOE Site Audit Reports. During remedial action construction activities, there were conditions encountered which required modifications of the original remedial action plan. These conditions and the associated design changes were submitted by DOE as ten Class I PIDs, i.e. those related to meeting the EPA standards, and were concurred in by the NRC staff. These PID's are listed in Section I of Volume I of the CR and are reflected in the as-built conditions presented in the CR.

The following sections present the results of the review of remedial action performance by individual technical discipline. Note that for the Ambrosia Lake remedial action completion review, the pertinent technical disciplines are: 1) geotechnical engineering, 2) surface water hydrology and erosion protection, 3) radiation protection, and 4) groundwater resources protection.

2.2.1 Geotechnical Engineering Review Results

The NRC staff reviewed the Ambrosia Lake CR (DOE, 1996) to determine whether the geotechnical engineering aspects of the remedial action were completed in accordance with: (1) the applicable construction specifications in the RAP; (2) all RAP modifications; (3) the RAIP; and (4) the final design. Items reviewed included descriptions of construction operations, as-built drawings, laboratory and field testing data, Remedial Action Contractor (RAC) inspection reports, and DOE and RAC Quality Assurance Audits. In addition, the review

was based on staff observations and review of records during on-site inspections.

During its review, the NRC staff noted the following:

1. Appropriate tests (gradation and Atterberg limits) and inspections were performed by DOE or its agents to ensure that the proper material type was placed in each phase of construction. Placement and compaction of construction materials were routinely inspected by DOE or its agents to ensure that the moisture and density requirements were met, and that the soil moisture was uniform throughout the compacted lifts. The loose thickness of the lifts was verified periodically by DOE or its agents to ensure compliance with the specification requirements for each particular type of material.
2. Laboratory and field testing by DOE or its agents was conducted in accordance with acceptable test procedures and by trained and qualified personnel. Records indicating acceptable calibration of measuring and testing equipment are provided in the Ambrosia Lake CR (DOE, 1996).
3. The CR shows that frequencies of material testing and inspection comply with the frequencies specified in the RAIP and in the NRC Staff Technical Position on Testing and Inspection Plans (January 1989).
4. Continuous inspections by DOE or its agents confirmed that the volume of organics included in the construction materials was limited to the range specified in the RAP.
5. The radon barrier layer was continually inspected by DOE or its agents to ensure the specified lift thicknesses and compaction levels were achieved.
6. The material type, placement, and compaction methods specified for the radon barrier layer resulted in the desired permeability and density of the barrier.
7. As-built drawings adequately document that the completed remedial action is consistent with the NRC-approved design.
8. The tailings embankment displacement data, presented in an April 16, 1997 DOE response to NRC comment (DOE, 1997), provides reasonable assurance that future settlement will not adversely affect the radon barrier, nor cause preferential erosion channels to form.

Based on the above observations, and on the results of on-site inspections (see Appendix A) performed by NRC staff during and after reclamation construction, the NRC staff concludes that the geotechnical engineering aspects of construction were performed in accordance with the specifications identified in the RAP and RAIP. The NRC staff concurs the remedial action has been adequately completed at Ambrosia Lake with respect to geotechnical engineering.

Section 2.2.2 Surface Water Hydrology and Erosion Protection Review Results

NRC staff reviewed the surface water hydrology and erosion protection aspects of remedial actions at Ambrosia Lake to ensure that they were constructed in accordance with the applicable construction specifications as stipulated in the RAP, RAP modifications, RAIP, and the final design. Areas of review included construction operations, laboratory and field testing, and quality assurance audits. In addition, the review was also based on NRC observations of the remedial actions and review of records and testing during an NRC on-site inspection.

The remedial action design included erosion protection in several specific areas, including: (1) riprapped top and side slopes; and (2) a buried riprap toe adjacent to the side slope. The top and side slopes of the cell were designed to prevent long-term erosion and gulying of the cell cover. The buried riprap toe was placed to prevent erosion and migration of gullies toward the cell.

The NRC staff reviewed each of these features and determined that testing, placement, and configuration complied with specifications in the RAP, RAP modifications, and the RAIP. The review was partially based on NRC staff observations and review of on-site records during the remedial actions, as well as assessment of the verification results presented in the Ambrosia Lake CR. In addition, the NRC staff reviewed records of the placement of riprap on the top and side slopes of the cell.

During the review, the NRC staff noted the following:

1. Tests (gradation and durability) and inspections were performed by DOE or its agents to ensure that erosion protection materials were properly selected. The review of the documentation indicated that placement of materials was routinely inspected by DOE or its agents to ensure that the rock size and gradation specifications were met. Likewise, the thickness of the rock layers was verified periodically by DOE or its agents to ensure compliance with the specifications for the particular type of

material.

2. Laboratory and field testing was conducted by DOE or its agents in accordance with specified test procedures.
3. Testing and inspection frequencies for materials used at the site for erosion protection were documented by DOE as complying with the frequencies specified in the RAIP.

Based on NRC staff observations and review of on-site records during remedial actions, as well as assessment of the verification results presented in the CR (DOE, 1996), the NRC staff concludes that the required durability and gradation tests were performed during the remedial action. The riprap is of adequate quality and has been acceptably placed. The NRC staff concurs the remedial action has been adequately completed at Ambrosia Lake, with respect to erosion protection.

2.2.3 Radiation Cleanup and Control Review Results

NRC staff reviewed radiation cleanup and control aspects of remedial actions at the Ambrosia Lake site to ensure that criteria for site cleanup of residual radioactive materials and control of radon flux from the disposal cell, have been met. The criteria and implementing procedures were established in the RAP (DOE, 1990) and concurred in by the NRC (NRC, 1990) as providing assurance that the processing site and disposal cell would meet the EPA requirements of 40 CFR Part 192. Areas of review included contaminated material excavation, cleanup verification procedures and data, and any application of supplemental standards. In addition, the construction data for the disposal cell cover and the final radon flux analysis were reviewed to ensure compliance with the RAP design for limiting radon releases (see Section 2.2.1). The review was based primarily on the staff's assessment of information presented in the final CR (DOE, 1996).

The criteria for soil radium (Ra-226) cleanup at the processing site and on adjacent lands were the applicable EPA standards (40 CFR 192.12) such that average Ra-226 levels above background in each 100 m² area (grid) exceeded neither 5 pCi/g in the top 15 cm of soil, nor 15 pCi/g in each underlying 15 cm layer. The RAP (Appendix C, page 6) indicated that a gamma-scanning tractor (R-TRAC or RTRAK) was to be used to verify cleanup in certain areas that contained relatively uniform windblown contamination. Approximately five percent of these areas was to be cross-checked with soil samples for quality control.

The RAP (Appendix D) indicated that thorium-230 (Th-230) and uranium levels were measured in several soil samples (values not given), but supplemental standards for these radionuclides were not proposed. Because the ore at this facility was processed using alkaline pressure leach technology, mobilization of Th-230 (disequilibrium of Ra-226 and Th-230) under leachate ponds and tailings piles was not considered a problem. The RAP (Appendix D, page 13) also indicated that the Ra-226/U-238 ratio was examined and a conservative ratio of four was chosen to discern a soil sample containing ore from one containing tailings.

The RAP (Volume 1, page 11) indicated that the mill buildings had been demolished and that the less contaminated rubble would be placed in a trench to be excavated northeast of the tailings disposal cell. Other contaminated rubble would go into the disposal cell. Therefore, verification of building cleanup was not required. NRC's TER states that the trench (debris pit) will not be required to meet EPA design standards due to the low level of contamination associated with the material (rubble) to be placed in the trench. Also, Design Basis Memorandum No. 16-473-00 indicates that selection of material for burial in the debris pit was based on contamination equal to or less than that of materials allowed to be abandoned in place and released for unrestricted use (criteria from NRC Inspection Procedure 83890).

The RAP radon attenuation design in Project Interface Document (PID) 16-S-32 was based on placing approximately 15 feet of low-level contaminated material (windblown tailings) on top of the reconfigured tailings pile and then placing 2.5 feet of compacted clayey soil as a radon barrier. The design was supported by a calculation of the estimated long-term radon flux from the barrier. This computer code calculation included parameter values for Ra-226 and radon emanation fraction based on analysis of contaminated material sampled after placement on the disposal cell and incorporated values representing freeze-thaw damage due to frost penetration 2.0 feet into the barrier. The resulting long-term radon flux of 16.1 pCi/m²s, indicated the flux criterion would be met with the proposed 2.5 feet of radon barrier. Although some of the data were preliminary, NRC staff provided concurrence on this PID by letter dated October 21, 1994, indicating that there was reasonable assurance that the long-term radon flux standard of 20 pCi/m²s (40 CFR 192.02) would be met.

Based on its CR review, with respect to the above criteria and consistency with the approved plan, the NRC staff has made the following findings:

1. Soil Background Ra-226: The RAP (Appendix D, page 9) indicates that the background value for Ra-226 in soil is 1.0 pCi/g, but the CR (Appendix J,

page 2) states that the value is 1.2 pCi/g. DOE indicated (November 22, 1996) in response to an NRC staff comment, that the RAP value was taken from a 1980 study, but remediation was under way using the 1985 Bendix study value from the RAP. DOE stated that the 1.2 pCi/g background value for soil Ra-226 was used throughout the remedial action so the value mentioned in the CR is correct.

2. Soil Cleanup: CR Appendix J indicates that all areas were cleaned according to DOE UMTRA Project procedures. DOE indicated in response to a staff comment that the Ra-226/U-238 ratio was not applied, because the processing site was within the windblown area and ore differentiation was not necessary.
3. Soil Cleanup Verification: The CR indicates that standard DOE UMTRA Project procedures for soil verification were appropriately applied at the Ambrosia Lake site. The site was divided into 100 m² areas (grids) and nine soil samples were composited and analyzed to verify cleanup levels (for most grids). Data in Appendix J indicates that 9,692 soil sample analyses averaged 1.5 pCi/g Ra-226 and that the highest value was 9.6 pCi/g (subsurface). The RTRAK gamma survey method was used in areas (640 grids) of windblown tailings. The average RTRAK value was 1.7 pCi/g and the highest value was 5.0 pCi/g. These values were validated by 58 quality control soil samples (9 percent) that averaged 1.4 pCi/g.

For four percent of the grids, soil samples were analyzed for Th-230 by an outside laboratory. The average value was 1.3 pCi/g and the highest value was 13 pCi/g. None of the grids sampled would exceed the Ra-226 standard in 1000 years due to decay of Th-230. All grids on the site appear to have data indicating that applicable cleanup criteria have been met.

4. Building and Debris Cleanup: The CR (Appendix J, page 8) indicates that all structures were demolished and the debris buried in the disposal cell unless surveys indicated it met the criteria in NRC Inspection Procedure 83890. The material meeting these release criteria for surface activity was buried in the trench that is within the area that will be under long-term government control and surveillance.
5. Radon Flux: The final radon flux analysis (calculation 16-491-04-01) in Volume 6B of the CR (provided November 22, 1996, after NRC comments on the CR were provided) contains revised input values for the radon barrier, based on additional testing during construction. NRC staff modeling confirmed that the long-term radon flux limit should be met. Also, As-

Built Drawing 10-0411 (CR Appendix D) indicates that 2.5 feet of radon barrier were placed on the disposal cell top and side slopes. In addition, DOE measured an average radon flux of 0.2 pCi/m²s on the completed radon barrier and indicated in response to a staff comment that the Ra-226 level for the radon barrier material was 1.2 pCi/g, substantiating the zero (background) value used in the flux model.

The NRC staff concurs the remedial action has been adequately completed at Ambrosia Lake, with respect to radiation cleanup and control.

2.2.4 Groundwater Protection Review Results

The RAP concluded, and NRC concurred that due to the poor hydrologic conditions at the Ambrosia Lake site, ground water protection will be achieved by monitoring existing monitoring wells under the provisions of supplemental standards. Therefore, no point of compliance monitoring wells were constructed for the site as part of the remedial action addressed by the CR. DOE has elected to postpone any groundwater remedial action activities to a separate phase of the project, so there were no hydrology issues to be considered by NRC in its review of the current document.

3.0 SUMMARY

NRC staff reviewed geotechnical engineering, surface water hydrology and erosion protection, and radiation cleanup and control aspects of the remedial actions at the Ambrosia Lake uranium mill tailings site. The purpose of this review was to determine whether DOE had performed remedial actions at the site in accordance with specifications in the RAP, RAP modifications, and other supporting project documents, and thus with the EPA standards in 40 CFR Part 192, Subparts A-C. Based on the review of the CR and on observations made during periodic on-site visits, the staff considers all open items to be resolved and concurs in the completion of the remedial action at the Ambrosia Lake, New Mexico site.

4.0 REFERENCES

U.S. Department of Energy (DOE), Washington, D.C.

DOE, 1990; "Remedial Action Plan and Site Conceptual Design for Stabilization of the Inactive Uranium Tailings Site at Ambrosia Lake, New Mexico-Final," September 1990.

DOE, 1995; Draft Completion Report, Ambrosia Lake, New Mexico, August, 1995.

DOE, 1996; Final Completion Report, Ambrosia Lake, New Mexico, August, 1996.

DOE, 1997 Response to NRC Comment on Settlement, Ambrosia Lake, New Mexico, April 16, 1997.

MK-Ferguson, (MK-F, 1989) "Remedial Action Inspection Plan, Revision A, Ambrosia Lake, New Mexico, Uranium Mill Tailings Site," September, 1989.

U.S. Nuclear Regulatory Commission, Washington, D.C., (NRC, 1990) "Final Technical Evaluation Report for DOE's Proposed Remedial Action - Ambrosia Lake UMTRA Project Site," December, 1990

APPENDIX A
NRC SITE VISITS TO THE AMBROSIA LAKE UMTRA PROJECT SITE

DATE	STAFF, DISCIPLINE	PURPOSE
5/6/85	M.F. Weber	Review Site Characterization activities proposed by DOE.
1/25/90	J.P. Grimm, Project Manager	Review Progress of Remedial Actions.
9/14/94	J.J. Holonich, Branch Chief D.M. Gillen, Section Chief C.E. Abrams, Project Manager	Site visit.
7/26/95	T.L. Johnson, Surface Water Hydrologist T.E. Harris, Geotechnical Engineer K. McConnell, Section Chief K.R. Hooks, Project Manager	Observe DOE final site inspection.
4/1/97	K.R. Hooks, Project Manager T.L. Johnson, Surface Water Hydrologist D.J. Rom, Geotechnical Engineer	Inspection

APPENDIX B
UMTRCA, THE EPA STANDARDS, AND THE PHASED UMTRA PROJECT

Title I of UMTRCA defines the statutory authority and roles of the DOE, the NRC, and the EPA, with regard to the remedial action program for inactive uranium mill tailings sites.

The Standards

UMTRCA charged the EPA with the responsibility for promulgating remedial action standards for inactive uranium mill sites. The purpose of these standards is to protect the public health and safety and the environment from radiological and non-radiological hazards associated with radioactive materials at the sites. UMTRCA required the EPA promulgate these standards by no later than October 1, 1982. After October 1, 1982, if the EPA had not promulgated standards in final form, DOE was to comply with the standards proposed by EPA under Title I of UMTRCA until such time as the EPA promulgated its standards in final form.

The final EPA standards were promulgated with an effective date of March 7, 1983 (48 FR 602; January 5, 1983); see 40 CFR Part 192 - Standards for Remedial Actions at Inactive Uranium Processing Sites, Subparts A, B, C. These regulations may be summarized as follows:

1. The disposal site shall be designed to control the tailings and other residual radioactive materials for up to 1000 years, to the extent reasonably achievable, and, in any case, for at least 200 years [40 CFR 192.02(a)].
2. Provide reasonable assurance that the disposal site design shall prevent radon-222 migration from residual radioactive material to the atmosphere from exceeding an average release rate of 20 micocuries per square meter per second (pCi/m²s), or from increasing the annual average concentration of radon-222 in air, at or above any location outside the disposal site, by more than one-half pCi per liter [40 CFR 192.02(b)].
3. The remedial action shall be conducted so as to provide reasonable assurance that, as a result of residual radioactive materials from any designated processing site, the concentrations of radium-226 in land averaged over any area of 100 square meters shall not exceed the background level by more than 5 pCi/g averaged over the first 15 centimeters (cm) below the surface and 15 pCi/g over 15 cm thick layers deeper than 15 cm below the soil surface [40 CFR 192.02(B)].

4. The objective of remedial action involving buildings shall be, and reasonable effort shall be made to achieve, an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 WL and the level of gamma radiation shall not exceed the background level by more than 20 microroentgens per hour [40 CFR 192.12(b)].

The portion of the EPA standards dealing with groundwater requirements, 40 CFR 192.20(a)(2)-(3) were remanded by the Tenth Circuit Court of Appeals on September 3, 1985. Based on this court decision, EPA was directed to promulgate new groundwater standards. EPA proposed these standards in the form of revisions to Subparts A-C of 40 CFR Part 192 in September 1987, and were promulgated in January, 1995.

Before final promulgation, as mandated by Section 108 (a)(3) of UMTRCA the remedial action at the inactive uranium processing sites, complied with EPA's proposed standards. DOE continues to perform remedial action at the inactive processing sites in accordance with NRC's concurrence with the remedial action approach based on the promulgated EPA standards. Delaying the implementation of the remedial action program would have been inconsistent with Congress' intent of timely completion of the program. The Commission believes that sites where remedial action was essentially completed prior to EPA'S promulgation of final groundwater standards will not be impacted by the final groundwater standards. Although additional effort may be appropriate to assess and clean up contaminated groundwater at these sites, the existing designs of the disposal sites should be considered sufficient to provide long-term protection against future groundwater contamination. NRC does not view UMTRCA as requiring the opening of those sites that have been substantially completed when NRC concurred with the selection of remedial action in accordance with applicable EPA standards, proposed or otherwise in place at the time such NRC concurrence was given.

DOE Selection (Design) Phase

For each site, UMTRCA requires that DOE select a plan of remedial action that will satisfy the EPA standards and other applicable laws and regulations, and with which the NRC will concur. For each site, this phase includes preparation by DOE of an Environmental Assessment or an Environmental Impact Statement, and a Remedial Action Plan (RAP). The RAP is structured to provide a comprehensive understanding of the remedial actions proposed at that site and contains specific design and construction requirements. To complete the first phase, NRC and appropriate State or Indian tribe will review the RAP and then concur that the RAP will meet the EPA standards.

The Performance (Construction) Phase

In this phase the actual remedial action (which) includes decontamination, decommissioning, and reclamation) at the site is done in accordance with the RAP. The NRC and the State/Indian tribe, as applicable, must concur in any changes to the concurred-in plan that arise during construction. At the completion of remedial actions at the site, NRC concur in DOE's determination that the activities at the site have been completed in accordance with the approved plan. Prior to licensing (the next phase), title to the disposed tailings and contaminated materials must be transferred to the United States and the land upon which they are disposed of must be in Federal custody to provide for long-term Federal control. Disposal sites on Indian land will remain in the beneficial ownership of the Indian tribe.

NRC concurrence in the DOE determination that remedial action at a processing site has been accomplished in accordance with the approved plan may be accomplished in two steps where residual radioactive material is not being moved from the processing site to a different disposal site. The Uranium Mill Tailings Remedial Action Amendments Act of 1988 allows for a two-step approach for Title I disposal sites. The Amendments Act will allow DOE to do all remedial actions, other than groundwater restoration, for the first step of closure and licensing. The second step, which can go on for many years, will deal with existing groundwater restoration. When groundwater restoration is completed, the Long-term Surveillance Plan required under the licensing phase will be appropriately amended. For sites that are being moved, licensing will occur in one step. There is no groundwater restoration at the disposal site and the processing site will not be licensed after completion of remedial action.

The licensing Phase

Title I of UMTRCA further requires that, upon completion of the remedial action program by DOE, the permanent disposal sites be cared for by the DOE or other Federal agency designated by the President, under a license issued by the Commission. DOE will receive a general license under 10 CFR Part 40.27 following: (1) NRC concurrence in the DOE determination that the disposal site has been properly reclaimed, and (2) the formal receipt by NRC of an acceptable Long-term Surveillance Plan (LTSP). NRC concurrence with DOE's performance of the remedial action indicates DOE has demonstrated that the remedial action complies with the provisions of the EPA standards in 40 CFR Part 192, Subparts A, B, and C. This NRC concurrence may be completed in two steps as discussed above. There is no termination date for the general license.

Public involvement has been and will continue to be provided through DOE's overall remedial action program for Title I sites. The local public will have an opportunity to comment on the remedial action or closure plans proposed and implemented by DOE and to raise concerns regarding final stabilization and the degree of protection achieved. NRC fully endorses State/Indian tribe and public input in all stages of the program. At the time the LTSP is submitted, the NRC will consider the need for a public meeting in response to requests and public concerns.

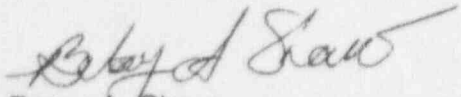
The Surveillance and Monitoring Phase

In this phase, DOE and NRC periodically inspect the disposal site to ensure its integrity. The LTSP will require the DOE to make repairs, if needed.

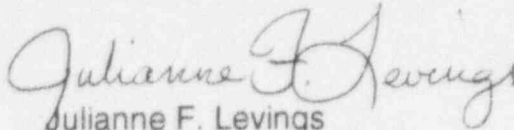
One of the requirements in the EPA standards is that control of the tailings should be designed to be effective for up to 1000 years without active maintenance. Although the design of the stabilized pile is such that reliance on active maintenance should be minimized or eliminated, the NRC license will require emergency repairs as necessary. In the event that significant repairs are necessary, a determination will be made on a site specific basis regarding the need for additional National Environmental Policy Act actions, and health and safety considerations based on 10 CFR Parts 19, 20, and 21.

CERTIFICATION SUMMARY
for the
Ambrosia Lake, New Mexico, Disposal Site

The Environmental Restoration Division Director and the Contracting Officer for the U.S. Department of Energy certify the Ambrosia Lake, New Mexico, combined processing and disposal site is complete and meets all design criteria, technical specifications, and the surface Remedial Action Plan required under Public Law 95-604. The undersigned request that the U.S. Nuclear Regulatory Commission concur in this certification.



Betsy A. Shaw
Contracting Officer
Major Programs Team
Field Management Branch
Contracts and Procurement Division

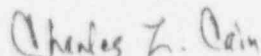


Julianne F. Levings
Acting Director
Environmental Restoration Division

DATE: NOV 22 1996

DATE: NOV 22 1996

The U.S. Nuclear Regulatory Commission's Chief of the Uranium Recovery Branch hereby concurs with the U.S. Department of Energy's completion of surface remedial action at the Ambrosia Lake, New Mexico, combined processing and disposal site.

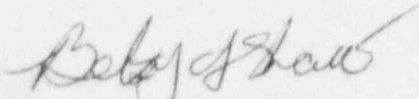


For Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

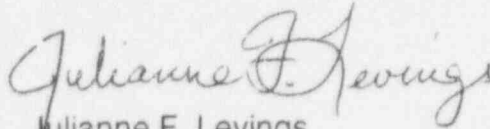
DATE: May 1, 1997

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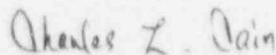


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For Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

DATE: May 1, 1997