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10/4/02
67 FR 62274
(2)

November 8, 2002

Chief, Rules and Directives Branch
Mail Stop T6-D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

REFERENCE: **Comments on the Draft Revision of the Office of State and Tribal Programs (STP) Procedure SA-900: Termination of Uranium Milling Licenses in Agreement States [67 *Fed. Reg.* p.62274 – October 4, 2002]**

Dear Sir or Madam:

The Nuclear Energy Institute (NEI)[1] on behalf of its industry members has reviewed the October 2002 draft revision of STP Procedure SA-900. This document was prepared with the input from members of the NRC Working Group on Termination of Uranium Mill Licenses in Agreement States and updates the first draft procedure issued in August 2001. Procedure SA-900 is intended to guide Agreement State and NRC staff in the fulfillment of the 10 CFR 150.15a(a) regulation that requires the NRC to approve the termination of all uranium recovery licenses in Agreement States.

On September 24, 2001, NEI submitted extensive comments on the August 2001 draft version of SRP Procedure SA-900 While the NRC staff has both addressed certain concerns raised by NEI and other stakeholders and adopted many of the suggested improvements, we still believe the clarity, structure and presentation of the draft revision could be significantly improved. The procedure could be easily shorted to a concise, 20-page document from the current, rather unwieldy 80 pages without compromising the important guidance. There remain many inconsistencies in terminology and the draft is in serious need of a thorough technical editing.

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[1] NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all nuclear companies licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

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For the balance of this letter NEI identifies several substantive issues that should be addressed before the procedure is finalized. Appended to the letter is a red-lined version of 36 pages of the October draft procedure that identifies some, but not all, of much-needed editorial changes.

NEI recommends that the NRC staff address the following concerns:

- ***NRC Bases of Determination***: procedure §V.D directs the NRC staff to review both the Agreement State's technical evaluation in a Completion Review Report (CRR) and the NRC's Integrated Materials Performance Evaluation Program (IMPEP) for the Agreement State before approving a proposed license termination. Procedure SA-900 fails to guide the staff in how the results of the IMPEP are to be used. There is, for example, no comparable section to §V.E (*'Scope of NRC Review of CRR'*) for use of the IMPEP. How is the IMPEP information to be specifically used? Greater clarity is required.

- ***Appendix Structure***: Appendices B and C of Procedure SA-900 are designed to provide the Agreement State and NRC staff with guidance on what technical information should be submitted to the NRC (in the form of a CRR) to allow the NRC staff to make their concurrence determination. Rather than clearly listing the specific information requirements, the appendices contain a mixture of the license termination reports from ARCO's Bluewater Mill, Western Nuclear's Sherwood mine and several Texas in-situ leach operations. References to site specific data (e.g. report dates, licensee names, analytical data) have been replaced by "XXXXs" and all the boilerplate information has been left intact. We disagree strongly with this approach and would recommend that the guidance simply direct the procedure's users to the actual termination reports cited in the references. There is absolutely no need to include 34-pages of boilerplate language for a conventional mill. The authors of Procedure SA-900 should make the effort to specify what information they truly need in a CRR. While inclusion of sample correspondence letters (Appendices D & E) is useful, providing the user with unnecessary boilerplate text is not called for. Appendices B and C should be totally restructured.

- ***Regulatory Discrepancies:*** no guidance is offered on how the NRC should assess a licensee's use of Agreement State-approved Alternate Concentration Limits or release criteria for radioactive materials that may differ from NRC or EPA guidelines. How should proposed restricted release applications be judged?

- ***Risk Informed Philosophy:*** a glaring omission in the procedure is guidance on how NRC staff is to address the agency's risk-informed, performance-based regulatory approach in the concurrence process. If there is, for example, a non-compliance concern that the licensee has resolved with the Agreement State, but not with the NRC, how should the NRC proceed? The procedure should guide the staff in evaluating the risk significance of such a non-compliance issue and in deciding whether a meaningful issue really does exist. For example, if the inherent risk to human health and the environment of the non-compliance is minimal, the NRC should grant concurrence on license termination. As the technical attributes of each licensee's operations and the risk significance of each decommissioning action are unique, the guidance should provide for flexibility in addressing compliance issues. One blanket, all-encompassing procedure will not suffice. Prompt resolution of non-risk-significant issues so as expedite license termination may outweigh continued delays and, in the worst case scenario, the bankruptcy of the licensee.

- ***Terminology:*** as NEI noted earlier, we recommend use of widely-used, industry terminology to improve the clarity and usefulness of the procedure. For example, for consistency with 10 CFR 40, we recommend use of the term "uranium recovery license" rather than "uranium milling license." A "non-conventional uranium recovery license" generally refers to an industrial operations whose production of U_3O_8 is a by-product (e.g. copper or phosphate mining). We recommend that the phrase "conventional mill and in-situ leach operation" be used in preference to "conventional and non-conventional mills."

NEI appreciates the opportunity to comment on STP Procedure SA-900 and should be pleased to answer any questions that you may have with this submission. Please feel free to contact me or Dr. Clifton W. Farrell (202-739-8098) to further discuss our concerns.

Sincerely,

Felix M. Killar, Jr.

Enclosures

Enclosure

SPECIFIC COMMENTS ON THE OCTOBER DRAFT VERSION OF PROCEDURE SA-900

Technical and editorial comments are written on pages excerpted from the PDF version of Procedure SA-900 that was downloaded from the STP Web Site. Only pages on which corrections are recommended are included in this Enclosure.

Some problems that occur repeatedly are noted below:

(1) **Terminology**: The term "STP Director" is also referred to as "Director, STP" in the text. The former term should be used for consistency. The term "uranium extraction license" should be replaced by "uranium recovery license" for consistency with 10 CFR 40 regulation terminology. The procedure should consistently refer to "license termination" rather than to "license closure" or "release."

(2) **Should & Shall**: there is inconsistent use of these two verbs. Often the far weaker "would" is used incorrectly. "Should" denotes a recommended action, whereas "shall" denotes a required action. The difference is significant.

(3) **Alternative & Alternate**: "alternative" is a noun and "alternate" is the adjective. The former can not be used as an adjective (e.g. alternative standard). The correct form can only be "alternate standard." There are many occurrences of these misused words.

(4) **Passive Verb Tense**: use of the passive verb tense should be avoided whenever possible.

(5) **[Month Date, Year]**: this frequently used, bracketed term should probably read [Month, Day, Year] (?)

(6) **"It was stated..."**: good English usage does not include use of the dreaded "it was [verb]..." phrase. For example on page D-6, the sentence "It was concluded by XDOH that the closure..." should be simply re-written as "XDOH concluded that the closure..."

Procedure Title: *Termination of Uranium Milling Licenses in Agreement States* Procedure Number: SA-900	Page: 1 of 10 Issue Date:

I. INTRODUCTION

This procedure describes the review process for making the determination that all applicable standards and requirements have been met prior to Agreement State uranium milling license termination, as required by 10 CFR 150.15a(a) and Section 274c of the Atomic Energy Act of 1954, as amended (Act).

II. OBJECTIVES

A. To establish the procedures to be followed by NRC staff for review of uranium milling license termination proposals submitted by Agreement States.

B. To provide guidance for use by Agreement States on preparation and submittal of uranium milling license termination proposals for NRC staff review.

III. BACKGROUND

A. Section 150.15a(a) ~~indicates~~ that the NRC shall have made a determination that all applicable standards and requirements pertaining to material as defined in 10 CFR 150.3(c)(2) have been met prior to termination of any Agreement State license for such material. This provision in NRC's regulations stems from Section 274c(4) of the Act which reads in part: "[t]he Commission shall also retain authority under any such agreement to make a determination that all applicable standards and requirements have been met prior to termination of a license for byproduct material, as defined in 11e.(2)."

B. With the approval of Management Directive 9.15, "Organization and Functions, Office of State Programs" on July 6, 1993, Office of State and Tribal Programs (STP), ~~then~~ Office of State Programs (OSP), was explicitly assigned responsibility for making determinations under §150.15a(a). Management Directive 9.15 provides, in part, that the Office "[m]akes the determination required in Section 274c of the Act of 1954 that all applicable standards and requirements have been met before an Agreement State terminates a license for byproduct material as defined in Section 11e.(2). This determination will be made in consultation with the Office of Nuclear Material Safety and Safeguards."

C. Two kinds of Agreement State uranium milling licenses are involved: conventional and non-conventional (mainly in-situ uranium ~~extraction~~ licenses). A conventional uranium mill is a facility that generates mill tailings ~~and~~ will be transferred to a custodial agency for long term care in accordance with 10 CFR § 40.28 after the

quantities of

entire license is terminated. A non-conventional uranium mill is a facility that generates limited byproduct materials which are normally transferred to conventional tailings impoundments for disposal and therefore no land transfer is required at license termination.

For both types of licenses, the Agreement State is expected to conduct its review for decommissioning, reclamation and/or groundwater restoration in accordance with license requirements and State standards which are compatible with the requirements of 10 CFR Part 40. Agreement States are responsible for approval of the remediation plans of uranium milling facilities in their States and for site inspections to ensure that the actual remedial actions have been completed pursuant to the approved plans. With NRC's determination that all applicable standards and requirements have been met, the Agreement State terminates the specific licenses for its licensees.

D. Historically, the NRC has reviewed non-conventional uranium milling license termination requests from Agreement States on a case-by-case basis without any specific guidance. This procedure describes the specific guidance the NRC staff would use to ensure consistency in the process and information that NRC would need from an Agreement State to make its determination prior to termination of pending and future Agreement State conventional and non-conventional uranium milling licenses. A detailed license termination process for termination of uranium milling licenses in Agreement States is documented in Appendix A.

IV. ROLES AND RESPONSIBILITIES

for

A. As stated in the Management Directive 9.15, the STP Director has overall responsibility for the review and making the determination required in Section 274c of the Act that all applicable standards and requirements have been met before an Agreement State terminates a license for byproduct material as defined in Section 11e.(2).

delete comma

B. The STP Project Manager (PM) is responsible for completing the NRC's review of uranium milling license termination proposals submitted by Agreement States. The PM is the primary NRC contact for the State during the review. Finally, the PM is the review team leader.

C. The review team is responsible for conducting the staff evaluation of Agreement State proposals according to this procedure. A team normally consists of the PM and the assigned staff contacts from the Office of Nuclear Material Safety and Safeguards (NMSS) and the Office of the General Counsel (OGC).

V. GUIDANCE

A. Agreement State's early interaction with NRC

Agreement States ~~are encouraged~~ to seek NRC guidance early on when a licensing action raises novel or unique issues that are atypical with normal, standard site closure proposals from Agreement State licensees. When a State licensing action is needed in response to such a licensee proposal, an Agreement State should make its own evaluation and determination on whether the licensee's proposal meets the applicable standards and/or requirements. At that time, the Agreement State is encouraged to provide NRC an opportunity to review the basis for its conclusion before the licensing action is taken. NRC will review the State's determination and provide its views as to whether the basis is sufficient to support the conclusion ~~to the Agreement State for consideration~~. Further interactions between NRC and the Agreement State may be needed to avert difficulties during NRC's review of the license termination if an agreement on the conclusion can not be reached.

In addition, approximately 2 years prior to submitting a draft CRR to NRC, Agreement States should consider whether NRC staff should be invited to visit sites that are in the process of license termination to discuss the histories and conditions of the sites and receive feedback, if any, from NRC staff. Agreement States may contact the Director, STP to discuss any early interaction activities.

B. Each Agreement State license amendment that terminates a portion of the site from a license ~~should~~ be considered as a partial license termination and the NRC ~~would~~ make the Atomic Energy Act, Section 274c(4) determination for each case.

C. Applicable standards and requirements to be used by NRC to make the determination:

The "applicable standards and requirements" to be used by NRC in making a determination under Section 150.15a(a) ~~would~~ be the applicable standards in the Agreement States. Such Agreement State standards were established according to the rules requirements in Section 274o of the Act during the initial or amendment of the Agreement, during revision of the regulations to maintain compatibility, or

during approval of an alternative standard.[1] Agreement State standards also include legally binding requirements, orders, or license conditions that implement the requirements of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA).

D. Bases to be used for NRC determination:

The determination that all applicable standards and requirements have been met prior to termination of an Agreement State license would have two primary supporting bases:

1. The first basis ~~would be a Completion Review Report~~ (CRR) submitted by the Agreement State ~~containing~~ the conclusions from the State's review of a licensee's completed remedial actions. This report would document the State staff's bases in summary form ~~for~~ its conclusion that all applicable standards and requirements have been met.

2. The second basis ~~would be~~ NRC reviews of the Agreement State's uranium recovery regulatory program, currently conducted under the Integrated Materials Performance Evaluation Program (IMPEP). The results of the IMPEP reviews would provide a basis for confidence on the determinations and conclusions reached by the Agreement State, as set out in the CRR, and also a basis of confidence that the State's reviews, licensing actions, and inspections associated with termination have been conducted appropriately. The periodic reviews of selected technical areas, conducted under IMPEP, which also include training and qualifications of staff and adherence to necessary program procedures, e.g., license termination process for uranium recovery licenses or equivalent procedures, will also serve as a basis that all applicable standards and requirements are met.

E. Scope of NRC review of CRR

NRC staff ~~would~~ not duplicate the State's review or conduct an independent detailed technical review of the proposed license termination or of any of the

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[1] As stated in the last paragraph of Section 274o of the Act, the Agreement State may adopt alternative standards if, after notice and opportunity for public hearing, the NRC determines that such alternative standards provide an equivalent or greater level of protection for public health, safety, and the environment.

specific documentation submitted by the Agreement State licensee. Rather, NRC staff ~~would~~ examine whether the CRR has documented the State staff's bases in summary form for its conclusion that all applicable standards and requirements have been met. The level of detailed information contained in the CRR should be similar to that contained in the sample CRRs which can be found in Appendices B and C for conventional and non-conventional uranium milling licenses, respectively.

Unless there are obvious flaws identified in the CRR related to the State-approved reclamation ~~plan~~ decommissioning plan, NRC staff will focus its review on whether the State has provided adequate bases in summary form to confirm that closure activities were performed according to the approved plans and specifications. In addition, if any changes or degradation of the design features have occurred since the completion of construction, NRC staff will determine whether the State has evaluated the changes to confirm that the site continues to meet all applicable standards and requirements.

F. Two-step CRR review process

A two-step CRR review process would involve an Agreement State formally submitting a draft CRR for NRC review and comment before the Agreement State submits its final CRR.

1. Agreement States should submit draft CRRs to NRC for review and comment. The State staff should alert the PM or the Director, STP, at least one month before submitting the draft. The Director, STP, should request that NMSS and OGC assign staff level contacts for the review team.

2. The draft CRR should include the following information depending on whether the license being terminated is a conventional or non-conventional uranium milling license. Sample CRRs for conventional and non-conventional uranium milling licenses can be found in Appendices B and C, respectively.
   a. Conventional Uranium Milling License
      (i) A brief description of licensee's activities associated with decommissioning, tailings remediation and/or groundwater cleanup.

(ii) Documentation that the completed surface remedial actions were performed in accordance with applicable standards and requirements.

(iii) Documentation that the completed site decommissioning actions were performed in accordance with applicable standards and requirements. This documentation should include a discussion of results of radiation surveys and confirmatory soil samples which ~~indicates~~ that the ~~subject~~ site meets applicable standards and requirements for release.

the — licensed — confirm

(iv) Documentation that the completed groundwater corrective actions, if necessary, were performed in accordance with applicable standards and requirements.

(v) Discussion of results of State's site closure inspection(s).

(vi) For partial terminations, documentation that release of a portion of the site will not negatively impact the remainder of the site to be closed at a later date. Such documentation could be a statement from the appropriate State regulatory agency which confirms that the impact of releasing a portion of the site has been evaluated and includes the bases for the State's conclusion.

b. Non-conventional Uranium Milling License (Mainly In-situ Uranium ~~Extraction~~ Recovery License)

(i) A brief description of licensee's activities associated with decommissioning and license termination.

(ii) Groundwater information which demonstrates that the groundwater has been adequately restored to meet applicable standards and requirements.

(iii) Documentation that the production, injection and monitoring wells have been closed and plugged in accordance with applicable standards and requirements. Such documentation

delete comma

Not correct: the 5/15 rule permits licensee to leave Ra-contaminated soil in place. Need to clarify this

could be a copy of correspondence from the State to the licensee which confirms that all wells have been closed and plugged in accordance with the State criteria or a statement from the appropriate State regulatory agency to that effect.

(iv) Decommissioning information which documents that all radiologically contaminated materials have been properly disposed of or transferred to licensee(s) authorized to possess such materials ~~to meet~~ applicable standards and requirements for release. Such documentation could be a statement which confirms that decommissioning activities have been evaluated and ~~includes~~ the bases for the State's conclusion.

in accordance with

from the State

(v) Discussion of results of radiation surveys and confirmatory soil samples which ~~indicates~~ that the ~~subject~~ site meets applicable standards and requirements for release.

Consistency with P.6 A(iii)

the

licensed

confirm

(vi) Discussion of results of the State's site closure inspection(s).

(vii) For partial terminations, documentation that release of a portion of the site will not negatively impact the remainder of the site to be closed at a later date. Such documentation could be a statement from the appropriate State regulatory agency which confirms that the impact of releasing a portion of the site has been evaluated and includes the bases for the State's conclusion.

Note: but SA-900 says there are 2 criteria

3. The review team will follow the guidance stated in Section V.E. and review the draft CRR using the acceptance criterion i.e., whether the draft report has documented the State staff's bases in summary form for its conclusion that all applicable standards and requirements have been met.

CRR

4. The review team prepares a letter to the State program Director to document the results of its review. The Director STP signs the letter following Office concurrence from NMSS and OGC. The PM may schedule telephone conference calls or meetings with State staff and team members, if needed, to discuss the results of the review.

5. The State should address NRC's comments by making changes to amend the draft CRR. The PM may schedule telephone conference calls or meetings with State staff and team members, if requested by the State, to discuss the amended draft CRR. When the State completes the amended draft CRR, the State program Director should submit it as the final CRR to the Director, STP.

as may be appropriate

X

X

6. The review team conducts a review of the final CRR to ensure that all the previous comments have been considered and reflected in the final CRR. The PM may schedule telephone conference calls or meetings with State staff and team members, if the comments are not properly addressed. The State should address those issues by making revisions to the final CRR, if needed.

are

7. After completing the review, the PM prepares a response letter (samples in Appendix D for conventional licenses and Appendix E for non-conventional licenses) back to the State and ~~obtains~~ concurrence from the OGC and NMSS.

after obtaining ⇐ timing and sequence of activities must be shown.

G. Long-Term Surveillance Plan (LTSP)

shall for the

For a full termination of a conventional uranium milling license, the NRC staff ~~would~~ also review a site LTSP submitted by the custodial agency. ~~The~~ Guidance on NRC review of the LTSP can be found in Appendix D of ~~the~~ NUREG-1620 entitled "Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act." NRC's review of the LTSP is not included in STP Procedure SA-900. Note that sites that have been partially terminated have involved areas surrounding the actual milling area which were released without the need for an LTSP.

The NRC review of the LTSP would be very similar for both NRC and Agreement State licensees since the review and acceptance of the LTSP is conducted in accordance with 10 CFR § 40.28 which is the sole purview of the NRC. Lack of NRC acceptance of a site LTSP can delay termination of the specific license. The NRC staff's acceptance of an LTSP ~~would~~ be documented by written notification to the relevant Agreement State and custodial agency.

shall

Clarify that land transfer and LTSP requirements only apply to uranium mill tailings pile and not to other types of lic. (2) material such as pipe scale.

H. Process to be followed for NRC determination:

1. A detailed step by step license termination process for conventional and non-conventional uranium milling licenses in Agreement States is documented in Appendix A. An Agreement State licensee's request for amendment to release a portion of site from its license also requires NRC to make a determination based on a site specific CRR for that portion of the site. Similar license termination processes would be followed for both partial and entire license termination cases.

2. Given a determination that all applicable standards and requirements have been met, the NRC should notify the State of its determination by formal correspondence. Upon notification from the NRC, the Agreement State should be prepared to terminate the specific license, ~~if it is a non-conventional uranium milling license~~, or to amend the license to remove the remediated portion from that license, if the license is being partially terminated.

Note: applies to both types of recvg license

3. For the full termination of a conventional uranium milling license, the Agreement State should be prepared to terminate the specific license after the following occur: (1) upon ~~notification~~ from the NRC that all applicable standards and requirements have been met; (2) upon ~~notification~~ from the NRC ~~that the~~ LTSP ~~has been accepted~~ and (3) the long-term care funds ~~have been transferred~~ to the appropriate State agency or the custodial agency.

receipt of concurrence

confirmation

acceptance of the

transfer of

VI. APPENDICES

Appendix A - Termination Process for Conventional and Non-conventional Uranium Milling Licenses in Agreement States

Appendix B - Sample Completion Review Report for Conventional Uranium Milling License

Appendix C- Sample Completion Review Report for Non-conventional Uranium Milling License

Appendix D - Sample NRC determination letter for Conventional Uranium Milling License

APPENDIX A - License Termination Process

Termination of uranium milling licenses in Agreement States has been divided into two major parts as follows: (a) termination of conventional uranium milling licenses; and (b) termination of non-conventional uranium milling licenses (mainly in-situ uranium ~~extraction~~ recovery licenses).

(a) Termination of Conventional Uranium Milling Licenses

Steps 1 through 4 and Step 6 are applied to entire license termination cases; steps 1 through 5 are applied to partial license termination cases.

Step 1: Licensee Documentation of Completed Remedial and Decommissioning Actions

Licensees are required under 10 CFR 40.42(j) or equivalent Agreement State regulations to document the results of site decommissioning by conducting a radiation survey of the premises where the licensed activities were carried out. The results of this survey, the contents of which are specified at the Agreement State regulation equivalent to 10 CFR 40.42(j)(2), are submitted to the State for review.

Criteria 5A-5D, along with Criterion 13, of Appendix A under 10 CFR Part 40 or equivalent Agreement State regulations incorporate the basic groundwater protection standards imposed by U.S. Environmental Protection Agency (EPA) in 40 CFR Part 192, Subparts D and E. These standards apply during operations and prior to the ~~end of closure~~ termination of the specific license. In addition, under Criterion 6(7), the licensee should address the non-radiological hazards associated with the wastes in planning and implementing closure. The licensee should ensure that disposal areas are closed in a manner that minimizes the need for further maintenance. Licensees may refer to the introduction section of 10 CFR Part 40, Appendix A, or equivalent Agreement State regulations with respect to the use of alternate standards for groundwater protection.

Note: "closure" is never defined in SA-90. See new text

what standards? EPA? AS? Confer Oct 2002 Mon with EPA/NRC

If the groundwater protection standards are exceeded, the licensee is required to put into operation a groundwater corrective action program (CAP). The objective of the CAP is to return the hazardous constituent concentration levels to the concentration limits set as standards. For licensees with continuing groundwater cleanup, State approval is required for the termination of corrective action. Appropriate groundwater monitoring data and other information that provide reasonable assurance that the groundwater has been cleaned to meet the applicable standards and requirements are submitted to the State for review.

Step 2: Review of Completed Closure Actions by the Agreement State

Upon receipt of the decommissioning report and if necessary, groundwater completion report, the State staff should review the content of the reports for documentation of acceptable completion of the applicable aspect of closure. The State staff should also review the licensee's completed reclamation of the tailings disposal cell. As part of its oversight process during decommissioning,

decommissing? termination?

Both unreferenced terms that should be noted in Step 1.

what is being constructed? (11)

the State staff should conduct site inspections, examining first-hand the closure actions taken. Additionally, the State staff should conduct a final construction completion inspection, which is expected to consist of a site walk-over.

Typically, there is an observational period following the completion of remedial actions for the State to assess the potential long-term stability of the tailings disposal cell. Licensees should report significant cell degradation occurring during this period. All identified hazardous constituents for which groundwater compliance sampling is being conducted at a licensed site must be returned to the concentration limits or alternate concentration limits set as standards prior to termination of a specific license. The specific license would not be terminated while an active groundwater CAP is in operation. Passive groundwater CAPs are acceptable for license termination, as long as the CAP achieves the applicable standards and requirements before license termination, and shows that groundwater will remain at or below those standards for the design life of the disposal cell.

X

Step 3: Site Ready for License Termination

When a licensee has completed site reclamation, decommissioning, and/or groundwater corrective actions, and is ready to terminate its specific uranium milling license, the licensee should formally notify the State of its intentions.

Step 4: NRC Review of Draft and Final Completion Review Reports (CRRs)

Upon receipt of a draft CRR, NRC staff would follow the review process described in Section V.F. of STP Procedure SA-900 to conduct its review.

Step 5: License Amendment for Partial License Termination

Given a determination that all applicable standards and requirements have been met, the NRC would notify the State of its determination by formal correspondence. If it is a partial license termination case for which a Long-Term Surveillance Plan (LTSP) is not required, the State should be prepared to amend the license to remove the remediated portion from it.

→ or unaffected (?)

Step 6: License Termination/Issuance of the General License

In cases involving termination of an entire license, NRC acceptance of the LTSP is required prior to termination of the specific uranium milling license and placement of the site and byproduct material under the 10 CFR 40.28 program of long-term maintenance and surveillance (?)

MISSING STEP: State prepare draft CRR and submits to NRC

Appendix A – License Termination Process

Given (1) NRC's determination that all applicable standards and requirements have been met and (2) upon notification from the NRC that the LTSP has been accepted and the long-term care funds[2] have been transferred to the appropriate State ~~agency; and~~ the custodial agency, the Agreement State should be prepared to terminate the specific license and to transfer the long-term care funds to the U.S. general treasury. The long-term custodian, for its part, should be prepared to accept title to the land and byproduct material.

(b) Termination of Non-Conventional Uranium Milling Licenses (Mainly In-Situ Uranium ~~Extraction~~ Licenses)

The following steps are applied to both partial and entire license termination cases.

Step 1: Licensee Documentation of Completed Decommissioning and/or Groundwater Restoration Actions

When the surface reclamation and/or groundwater restoration is complete, the licensee should submit (1) groundwater information which demonstrates that groundwater has been restored in accordance with the applicable standards and requirements and (2) documentation indicating that the production, injection, and monitoring wells have been closed and plugged in accordance with the State criteria, to the State for review, as a groundwater completion report (cf. p.A-1)

Licensees are also required under 10 CFR 40.42(j) or equivalent Agreement State regulations to document the results of site decommissioning, which is accomplished by conducting a radiation survey of the premises where the licensed activities were carried out. The results of this survey, the contents of which are specified at the Agreement State regulation equivalent to 10 CFR 40.42(j)(2), are submitted to the State for review, as a decommissioning report (cf. p.A-1)

Step 2: Review of Completed Closure Actions by the Agreement State

Upon receipt of the decommissioning report, and if necessary, groundwater restoration report, the State staff should review the content of the report for documentation of acceptable completion of the applicable aspect of closure. As part of its oversight process during decommissioning, the State staff should conduct site inspections, examining first-hand the closure actions taken. Additionally, the State staff should conduct a final site inspection, which is expected to consist of a site walk-over.

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[2] Prior to license termination, the Agreement State should establish the final amount of the long-term site surveillance fund to be paid by the licensee in accordance with Criterion 10 of Appendix A under 10 CFR Part 40 or equivalent Agreement State regulations. The Agreement State's process for determining this amount should include consultations with the custodial agency. Payment of this amount to the appropriate State agency or the custodial agency is required prior to license termination.

(13)

Appendix A – License Termination Process

Step 3: Site Ready for License Termination

When a licensee has completed site decommissioning, and/or groundwater restoration actions, and is ready to terminate its specific uranium milling license, the licensee should formally notify the State of its intentions.

← MISSING STEP (see P. A-2 note)

Step 4: NRC Review of Draft and Final CRRs

Upon receipt of a draft CRR, NRC staff would follow a review process stated in Section V.F. of the STP Procedure SA-900 to conduct its review.

Step 5: License Termination/License Amendment for Partial License Termination

Given a determination that all applicable standards and requirements have been met, the NRC should notify the State of its determination by formal correspondence. Upon notification from the NRC, the Agreement State should be prepared to terminate the specific license or amend the license to remove the remediated portion from it, if the license is being partially terminated.

or unaffected

Consistency in terminology !

(14)

APPENDIX B - Sample Completion Review Report for Conventional Uranium Milling License

decommissioning, reclamation and/or groundwater restoration

NOTE TO READER

STP SA-900

The sample Completion Review Report (CRR) was developed by a Working Group composed of Agreement State and NRC staff. As stated in ~~the~~ procedure, prior to license termination, Agreement States submit CRRs for NRC review. The CRR ~~should~~ shall document the State staff's bases in summary form for its conclusion that all applicable standards and requirements have been met. The purpose of this sample CRR is ~~intended~~ to generally show the level of detailed information in a variety of technical areas which should be provided in the CRR. The Working Group recognized that no single site, or any existing documentation, could serve as a complete template for all aspects of site closure, since each conventional uranium milling site is likely to have its own site-specific conditions ~~that would be unique to that site~~. To cover as many aspects of license ~~termination~~ activities as possible, the sample CRR is a composite of examples from a number of existing documents. Stakeholders' comments and input have also been considered and reflected in the sample CRR.

X X

expected

neither a

The reader is advised that the sample CRR ~~does not~~ provides a complete list of all applicable standards and requirements that need to be addressed nor complete boiler plate language to be used as bases for conclusions. Rather, the level of detailed information ~~contained~~ in the sample CRR ~~covering a variety of technical issues is what is expected to be included in the CRR.~~

it provides an example of

that would be expected for inclusion in

NOTE: This example fails to address how the second basis for determination (IMPEP) is to be used.

Appendix B – Sample Completion Review Report (Conventional)

Agreement State Radiation Control Program

COMPLETION REVIEW REPORT

Date:
Licensee: XXXXX
License Number: XX-XXXX-X
Facility Name: XXXXX
Location: XXXXX, State
Licensed Area Being Terminated: approximately X,XXX acres
Manager:
Technical Reviewers: [John Smith, M.S.,P.E. (Hydrologic Engineer)]

I. SUMMARY

The ABC Company's XYZ site is a conventional uranium milling and tailings site which has been decommissioned and reclaimed under XXX State Department of Health (XDOH) Agreement State authority, derived from Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). UMTRCA requires that prior to termination of the license, the U.S. Nuclear Regulatory Commission (NRC) shall make a determination that the licensee has complied with all applicable standards and requirements. Under the Agreement State program, the State of XXX is responsible for approval of the remediation plans for ABC and for site inspections to ensure that the actual remedial actions have been completed pursuant to ~~the approved plans.~~ XYZ

This report documents XDOH's basis for its conclusion that decommissioning and reclamation have been acceptably completed at the XYZ site. The NRC STP Procedure SA-900 entitled, "Termination of Uranium Milling Licenses in Agreement States," was used to prepare this report.

The applicable standards for uranium mill reclamation is Chapter XXX-XXX XAC (State Administrative Code), entitled [Radiation Protection-Uranium and/or Thorium Milling]. This State regulation is consistent with and compatible with NRC regulations, as required by the State's Agreement State status with the NRC.

All applicable standards and requirements, with appropriate references to related sections of the CRR, are identified in Table 1. [Note to Reader: Table 1 in this sample CRR does not contain a complete list of all applicable standards and requirements.] XDOH has performed a complete review of the XYZ site for compliance with all applicable standards and requirements. As part of that review, XDOH has prepared a Technical Evaluation Report (TER) (reference) or other technical reviews (reference(s)) to document the State's review. The TER or other technical reviews may provide reference to more detailed evaluations by the State and to ABC's documents submitted for State review during the site's reclamation period.

XDOH concludes that the specific criteria of 10 CFR Part 40 Appendix A (or State equivalent regulations) are met as follows:

Criterion 1. Tailing Isolation

Erosion, disturbance, and dispersion are minimized.

The contaminated tailings will be protected from flooding and erosion by an engineered rock riprap layer. The riprap has been designed in accordance with the applicable guidance (reference). XDOH staff considers that erosion protection that meets that guidance will provide adequate protection against erosion and dispersion by natural forces over the long term. As discussed in the CRR Section XX, adequate protection is provided by (1) selection of proper rainfall and flooding events; (2) selection of appropriate parameters for determining flood discharges; (3) computation of flood discharges using appropriate and/or conservative methods; (4) computation of appropriate flood levels and flood forces associated with the design discharge; (5) use of appropriate methods for determining erosion protection needed to resist the forces produced by the design discharge; (6) selection of a rock type for the riprap layer that will be durable and capable of providing the necessary erosion protection for a long period of time; and (7) placement of a riprap layer in accordance with accepted engineering practice and in accordance with appropriate testing and quality assurance controls.

As discussed in the CRR Sections XX, XDOH staff considers that the riprap layers will not require active maintenance over the 1000-year design life, for the following reasons: (1) the riprap has been designed to protect the tailings from rainfall and flooding events which have very low probabilities of occurrence over a 1000-year period, resulting in no damage to the layers from those rare events; (2) the rock for the riprap layers is designed to be durable and is not expected to deteriorate significantly over the 1000-year design life; and (3) during construction, the rock layers have been placed in accordance with appropriate engineering and testing practices, minimizing the potential for damage, dispersion, and segregation of the rock.

Criterion 4.

(a) erosion potential

The site is located in an area that is flooded by offsite floods from XXXX (area). However, as discussed in the CRR, the site is protected from direct onsite precipitation and flooding by engineered riprap layers for the top and side slopes; the tailings disposal cell will need this protection regardless of where it is located. The riprap for the side slopes and drainage ditches is large enough to resist flooding from the minimal flow velocities of floods occurring from a probable maximum flood (PMF) on the XXXX (area). A large rock apron has been provided to

II. DOCUMENTATION OF BASES FOR CONCLUSION

Following are XDOH's review results for items specified in the STP Procedure SA-900 "Termination of Uranium Milling Licenses in Agreement States."

1. A brief discussion of licensee's activities associated with decommissioning, tailings remediation and/or groundwater cleanup.

ABC completed construction of the mill in [year], and it was operated until [year]. Nominal milling capacity was X,XXX tons of ore per day, with an average design ore grade of 0.XXX percent U_3O_8. The company received ore and processed it from [insert sources of ore or materials for reprocessing]. Approximately XX.X million tons of tailings were placed in the impoundment from milling operations. The estimated radium-226 activity in the impoundment is XXX curies, and Th 230 activity is estimated at XXX curies (reference).

Mill decommissioning activities began in [year] and were completed in [year]. Approximately XXX,XXX cubic yards (yd^3) of contaminated mill site soils, building equipment, and debris were excavated from the XYZ processing site and hauled approximately XXX miles for placement in the synthetically lined area of the tailings impoundment (reference). Other materials disposed of in the impoundment include [insert direct disposed materials from off-site sources] with estimated radium-226 activities of XXX curies, total uranium activity of XXX curies, and Th-230 activities of XXX curies.

[Impoundments that exist on-site as opposed to a new cell should describe dewatering and other pre-capping activities.]

The mill site was characterized using a combination of scans for gamma radiation and analyses of surface soils, and borehole logging and soils analyses for subsurface deposits. Areas with contamination found to exceed applicable standards and requirements were excavated. Contaminated materials were disposed in the [lined] tailings impoundment or repositories (reference). The site cleanup was monitored and a Final Status Survey was conducted following guidance in [NUREG 1575 (MARSSIM)].

X

Once filled, the impoundment was covered with XX.X feet of site borrow soils, and re-vegetated. A ~~division~~ channel was constructed around three upgradient sides of the impoundment. A rock-armored swale outlet for the impoundment cover watershed was installed. All impoundment and margin areas have been covered with either rock armor (riprap) or re-vegetated to provide structural stability (reference).

XX

A Monitoring and Stabilization Plan, in effect during and after reclamation construction in [year], has been evaluating site performance. XDOH staff inspections and reviews of monitoring data and analytical justifications provided by ABC indicate that the site has reached a stable condition.

diversion

confines of the tailings pile. The contaminated soil and building rubble generated from the mill demolition were added to the disposal cell.

2.1.3 Disposal Cell Area

Several subsurface investigations have been performed at the XYZ site in order to characterize the tailings and contaminated materials for geotechnical engineering and radiological aspects of the closure. Drawings in the [month date,] XXXX report (reference) illustrate the original test boring and test pit locations. Logs of soil borings and test pits were provided in the ABC's earlier submittals (reference). In [month] of [year], additional test pits were excavated within the confines of the mill and the tailings embankment. The [year] test pit logs are reported in Appendix X of the [month date, year] submittal (reference). X

Exploration to depth within the tailings embankment was not previously performed since the presence of an active evaporation pond impeded drill rig access. To further characterize the tailings, and to evaluate the embankment with respect to stability and potential settlement, ABC has committed to perform piezocone or other in-situ tests after the cover has been placed. The piezocone is an instrument which measures the piezometric pressure at a cone tip as the test device penetrates a material. Cone Penetration Test (CPT) pore pressures, thus measured, reflect both the soil type and the stress history of the material. CPT or equivalent test data have been reviewed along with settlement records to better evaluate the time-rate of tailings consolidation.

2.1.4 Borrow Areas

Radon barrier clay soils from the XXXX area were evaluated by [reference]. The XXXX borrow area is located about XX miles [west] of the tailings pile. Sandy soil for the radon barrier was obtained from material excavated during the reconfiguration of XXXX area (reference). In [year], XX exploratory test pits were excavated in the XXXX area.

Finally, in addition to the sampling associated with the reconfiguration of XXXX area, three additional samples were taken from the borrow area.

2.1.5 Geotechnical Investigation Conclusions

XDOH staff has reviewed the subsurface exploration discussed above. XDOH concludes that the geotechnical investigations conducted at the processing, disposal, and borrow sites satisfactorily establish the stratigraphy, that the explorations are in general conformance with applicable provisions of Chapter X of the SRP (reference), and that they are adequate to support the assessment of the geotechnical stability of the stabilized tailings and contaminated material in the disposal cell. Additional in-situ testing was performed to confirm the stratification and strength parameters of the tailings and to confirm the settlement analysis.

construction, there is no likely flood flow in the channel for flood recurrence intervals less than XXX years, due to expected infiltration. For larger, low-probability flood events, sediment would likely flush out with the expected flood flow. Even without flushing, sediment accumulation predicted by the analysis was approximately X.X feet at the bottom of the diversion channel. The channel was designed so that a minimum of X foot of freeboard would be present, and included a very conservative design PMF basis, sedimentation in the channel, and re-vegetation of the channel (reference). In addition, the channel was constructed somewhat oversized to meet the design cross-section minimum requirements, and therefore has a capacity excess from the design minimum required.

The impoundment swale outfall requires rock (riprap) erosion protection, since it is designed to convey concentrated flood flow from the impoundment surface and to discharge it away from the reclamation site. This area was evaluated with the same analytical tools as the diversion channel, and found to be adequate. The design was prepared by ABC, and evaluated and approved by XDOH. Worst-case assumptions were used to evaluate the design, based on [NRC guidance]. Vegetation productivity on the impoundment cover has reached a self-sustaining performance level and will continue to improve over time, limiting the probability of occurrence of maximum flood flow (reference). The swale outfall is located over a large area of competent quartz monzonite of sufficient structural capacity, extent, and elevation, that limits potential erosion of cover soils from the impoundment. The swale outfall therefore protects the cover from erosion and promotes sedimentation on the shallow-sloping impoundment surface (reference).

2.2.5 Conclusion

In conclusion, XDOH's review of surface water hydrology and erosion protection has found the XYZ site to be in conformance with regulatory requirements of criteria X, X, X, X, and X in 10 CFR Part 40 Appendix A (or equivalent State regulations).

3. Documentation that the completed site decommissioning actions were performed in accordance with applicable standards and requirements. This documentation should include a discussion of results of radiation survey and confirmatory soil samples that indicated that the subject site meets applicable standards and requirements for release.

3.1 RADIATION CLEANUP AND CONTROL

3.1.1 Introduction

Cleanup of the site was based on the approved decommissioning plan (reference) ([include license conditions or tie downs)]. The operating history of the facility was reviewed in order to ensue that all potential sources of contamination were identified. Applicable standards and requirements were identified during the development of the decommissioning plan and are outlined in Table 1. Cleanup parameters and guidelines were appropriate and designed to demonstrate compliance.

3.1.5 State Oversight [insert narrative]

In addition to the independent verification, XDOH conducted XX site visits, XX inspections, collected XX samples, and conducted XX gamma surveys on XX survey units. Results of the XDOH's surveys were compared to ABC's results and are in good agreement. (references). [Insert table with results of State analyses].

3.1.6 Conclusion

XDOH's review of radiation cleanup and control has found the XYZ site to be in conformance with regulatory requirements of criteria X, X and X in 10 CFR Part 40 Appendix A (or equivalent State regulations).

3.2 RADON EMANATION

ABC designed the impoundment cover from site soils and determined that an average cover design thickness of XX.X feet was required in order to meet the regulatory limit of XX pCi/m²s found in Criterion 6 (reference). ABC used the XXXX computer code to perform this analysis. The analysis is based on the concentration of radium 226 in the tailings, and on the soil parameter [default] values recommended by the [NRC in guidance documents] applicable to tailings impoundment cover design for radon emanation control. XDOH reviewed ABC's design and analysis reports, verified their results, and approved the design plans and specifications. A sensitivity analysis was performed, using realistic, expected long-term soil parameters, and found that a radon 222 flux of only X.XX pCi/m²s would be expected during the summer and fall when the cover soils are not expected to be saturated (reference).

A thick soil cover of at least XX.X feet thick was placed over the impounded tailings at the XYZ site. The total volume of soil moved during construction to place the cover is in excess of X million cubic yards (yd³). The vegetated cover was designed to have long-term performance. Natural materials (vegetation, soils, and rock) have been used to prepare and construct the cover design. Actual materials used in construction had a greater proportion of fine material than required by the construction design plans and specifications. The actual thickness of the constructed cover averaged over XX.X feet from the sloped sub-grade. The sub-grade, although made up of radium 226-contaminated material, was produced by re-grading the tailings to the required contour and adding additional soil from the contaminated soils cleaned up in the mill area, with clean fill to meet grade requirements. Therefore, the upper portion of the tailings had less radium 226 concentration than was used in the analysis for determining cover thickness. All together, the design is quite conservative and the actual construction met the requirements of the approved design plans and specifications.

4.1.4 Conclusion

XDOH has made a determination that the closure of ABC's facility is in compliance with State groundwater regulations associated with uranium mill closure. The closure is specifically in compliance with the following groundwater criteria delineated in Chapter XXX-XXXX [State regulations], Criterion 5 and Criterion 13, which incorporate the basic groundwater protection standards imposed by EPA in 40 CFR Part 192, Subparts D and E; and imposed by NRC in 10 CFR Part 40, Appendix A which specifies groundwater monitoring requirements.

CAPITALIZE

4.2 Groundwater Remediation (EXAMPLE 2: Remediation Scenario)

Analytical results of groundwater samples collected from monitoring wells at ABC's facility indicate that the shallow aquifer has been contaminated by the tailings impoundment at concentrations in excess of applicable standards (reference). Using these validated groundwater data, the extent of contamination was delineated by constructing isoconcentration plume maps for ammonia, chloride, molybdenum, nitrate, selenium, sulfate, and uranium (reference). These data indicate that degradation of groundwater quality has occurred as a result of ABC's milling operations which warranted groundwater restoration actions. Subsequent to dewatering, removal, and transfer of the tailings to another licensed site, XDOH worked with ABC to remediate groundwater contamination (reference).

4.2.1 Remedial Selection

The following groundwater remedial alternatives were reviewed by XDOH (reference):

1) natural flushing,
2) hydraulic gradient control via infiltration galleries,
3) slurry wall, groundwater pumping wells, and evaporation pond disposal,
4) groundwater pumping wells, wastewater treatment, and discharge to the [XXXX area], and
5) permeable reactive barriers.

Results of the review indicated that Option 5, permeable reactive barriers, was the most technologically efficient and cost effective remedy based on site-specific characteristics and the nature and extent of groundwater contamination at ABC's facility (reference). Permeable reactive barriers avoid the technological limitations and budgetary constraints associated with traditional approaches such as pump and treat technology (reference). Another significant advantage of permeable reactive barriers is the greatly reduced operation and maintenance costs which are limited to simple groundwater head and water quality monitoring (reference). Permeable reactive barriers are placed in the path of a migrating plume of contaminated groundwater and reactive media within the barrier promote geochemical reactions that result in the destruction, immobilization, and/or stabilization of groundwater contaminants.

5. Discussion of results of State's site closure inspections

XDOH has performed site closure inspections over the years as the site remediation moved from one phase to the next. XDOH has employed inspection staff or provided specialized consultants to review and verify virtually every aspect of site closure.

Results of XDOH's site inspections have been to provide a presence to ensure the site reclamation activities are performed as required by regulations and license conditions For significant aspects of reclamation, ABC submitted detailed plans and specifications for the work. These plans were reviewed and approved by XDOH. In these cases, XDOH inspectors have performed many field inspections to verify conformance of site activities to approved plans. This is particularly the case for reclamation construction of the diversion channel and thick, vegetated cover. Of particular emphasis was inspection of soil, rock, vegetation, and groundwater.

Monitoring during site closure has continued to evaluate environmental media and site performance. Periodic inspection and monitoring activities have been performed to determine radionuclide concentrations in soil, air, and groundwater. ABC has been required to perform this monitoring and to report results annually. XDOH has performed split sampling and has evaluated monitoring results in the State's independent laboratory to provide verification of ABC's results.

6. For partial terminations, documentation that release of a portion of the site will not negatively impact the remainder of the site to be closed at a later date. Such documentation could be a statement from the appropriate State regulatory agency which confirms that the impact of releasing a portion of the site has been evaluated and included the bases for the State's conclusion.

XDOH has determined that the release for unrestricted use and removal of the subject site will not negatively impact the remainder of the sites associated with the license, which will be released for unrestricted use and removed from the license at a later date, based on the following: The site being removed from the license is not contiguous with any other site associated with licensed activities: removal of the sites from their associated license will not in any way prevent or hinder the licensee ability to complete decommissioning of the remainder of the licensed areas.

III. REFERENCES

(23)

APPENDIX C - Sample Completion Review Report for Non-conventional Uranium Milling License

NOTE TO READER

The sample Completion Review Report (CRR) was developed by a Working Group composed of Agreement State and NRC staff. As stated in the procedure, prior to license termination, Agreement States submit CRRs for NRC review. The CRR would document State staff's bases in summary form for its conclusion that all applicable standards and requirements have been met.

~~The purpose of~~ This sample CRR is intended to generally show the level of detailed information in a variety of technical areas which should be provided in the CRR. The Working Group recognized that no single site, or any existing documentation, could serve as a complete template for all aspects of site closure, since each non-conventional uranium milling site is likely to have its own site-specific conditions that would be unique to that site. To cover as many aspects of license termination activities as possible, the sample CRR is a composite of examples from a number of existing documents. Stakeholders' comments and input have also been considered and reflected in the sample CRR.

The reader is advised that the sample CRR ~~does not~~ neither provide a complete list of all applicable standards and requirements that need to be addressed nor complete boiler-plate language to be used as bases for conclusions. Rather, the level of detailed information contained in the sample CRR covering a variety of technical issues is what is expected to be included in the CRR.

make identical changes that were made on Page B-1

APPENDIX C - Sample Completion Review Report for Non-conventional Uranium Milling License

(24)

Agreement State Radiation Control Program

COMPLETION REVIEW REPORT

Note: for consistency with Appendix B, you should include a Table of Contents.

Date:
Licensee: XXXXX
License Number: XX-XXXX-X
Facility Name: XXXXX
Location: XXXXX, State
Licensed Area Being Terminated: approximately X,XXX acres
Manager:
Technical Reviewers: [John Smith, M.S.,P.E. (Hydrologic Engineer)]

I. SUMMARY

The ABC Company's XYZ site is an in-situ leach mining and processing site which has been decommissioned and reclaimed under XXX State Department of Health (XDOH) Agreement State authority, derived from Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). UMTRCA requires that prior to termination of the license, the U.S. Nuclear Regulatory Commission (NRC) shall make a determination that the licensee has complied with all applicable standards and requirements. Under the Agreement State program, the State of XXX is responsible for approval of the remediation plans for ABC and for site inspections to ensure that the actual remedial actions have been completed pursuant to the approved plans.

This report documents XDOH's basis for its conclusion that decommissioning and reclamation have been acceptably completed at the XYZ site. The NRC STP Procedure SA-900 entitled, "Termination of Uranium Milling Licenses in Agreement States," was used to prepare this report. The primary applicable standards for uranium mill reclamation is Chapter XXX-XXX XAC (State Administrative Code), entitled [Radiation Protection-Uranium and/or Thorium Milling]. This State regulation is consistent with and compatible with NRC regulations, as required by the State's Agreement State status with the NRC.

All applicable standards and requirements, with appropriate references to related sections of the CRR, are identified in Table 1. [Note to Reader: Table 1 in this sample CRR does not contain a complete list of all applicable standards and requirements.] XDOH has performed a complete review of the XYZ site for compliance with all applicable standards and requirements. As part of that review, XDOH has prepared a Technical Evaluation Report (TER) (reference) or other technical reviews (reference(s)) to document the State's review. The TER or other technical reviews may provide reference to more detailed evaluations by the State and to ABC's documents submitted for State review during the site's reclamation period.

25

A letter/letters (attached) dated XXXX from XDOH to the ABC provides the following information: XDOH has received the restoration data for Productions Area XX of the XYZ mine. A review of the data shows that the production area has been restored in accordance with the specifications contained in permit XX-XXXX and as required by State regulations XX-XXX-XXXX. ABC has been authorized to cease any restoration activities, including monitoring, at the production area.

3. Documentation that the production, injection, and monitoring wells have been closed and plugged in accordance with applicable standards and requirements.

A letter/letters (attached) dated XXXX from XDOH to the ABC provides the following information: In accordance with State regulations XX-XXXX-XX, XDOH revokes permit XXXX. Groundwater was restored following criteria set forth in State regulations XX-XXXX-XXXX. All of the Class III wells were plugged as of month year, and certifications have been received from the mine operator and from an independent registered processional engineer that plugging was accomplished in accordance with the plugging and abandonment plan in the permit.

4. Decommissioning information which documents that all contaminated materials have been properly disposed of, transferred to licensee(s) authorized to possess such materials, or meet applicable standards and requirements for release.

During surface reclamation and decommissioning all material and equipment was surveyed for radioactive contamination. Any material and/or equipment which was contaminated was released by utilizing one of the following methods: 1) transfer to licensee(s) authorized to possess such materials; 2) decontamination and released for unrestricted reuse or recycling; 3) or disposal at a licensed byproduct disposal facility.

All material and equipment to be released for unrestricted use (e.g., reuse, recycle, or disposal) have been surveyed by ABC to demonstrate compliance with [State regulations for control of radiation XX.XXX]. The surveys consisted of scans, direct measurements and swipes for determination of removable activity. These surveys have been taken and documented by ABC to meet these criteria as summarized below:

This sentence seems misplaced. Should be in top paragraph.

APPENDIX C - Sample Completion Review Report for Non-conventional Uranium Milling License

[(1) Removable surface contamination: 1000 dpm alpha per 1000 m^2
(2) Fixed surface contamination (average over 1 m^2): 5000 dpm alpha/beta per 100 cm^2
(3) Maximum fixed contamination: 15,000 dpm alpha/beta per 100 cm^2]

All soils have been surveyed to demonstrate compliance with the requirements of State regulation XX.XXX. These surveys have been completed and documented to meet these criteria:

[(1) 5 pCi/gm of Ra-226 averaged over any 100 m^2 area and averaged over the first 15 cm depth of soil, (2) 15 pCi/gm of Ra-226 averaged over any 100 m^2 area and averaged over any subsequent 15 cm depth of soil; and (3) 30 pCi/gm of U-nat.]

5. Discussion of results of radiation survey and confirmatory soil samples which indicates that the subject site meets standards and requirements for release.

Surveys, conducted by ABC, to confirm the effectiveness of reclamation and decommissioning activities were performed by scans, direct and/or swipe surveys of equipment and structures to be turned over to the landowner. [Direct survey of land was conducted by taking readings at 10 meter intervals across the wellfield pattern. Soil samples were taken from three 10 meter by 10 meter areas per acre, or insert applicable survey protocol (e.g., MARSSIM), DCGLs, etc.] ABC subsequently requested termination of its license.

In [month, year, XDOH staff performed confirmatory surveys of the wellfield. The surveys were performed using [one-by-one sodium iodide probes and XXXX survey meters]. The survey was performed by [walking 10 meters apart moving across the well field pattern (reference), or insert applicable survey protocol (e.g., MARSSIM), DCGLs, etc.].

Background gamma count rate readings were approximately [X.XXX cpm or mR/hr] on all meters. As a result of the surveys, [twenty-nine] areas were identified as having readings greater than the action level. These areas were cleaned up by ABC and resurveyed by XDOH staff. All areas resurveyed had readings which were less than action level.

Concurrently XDOH staff collected soil samples from XX areas. Soil sample results were within the regulatory limits for radium-226 and natural uranium soil concentrations of [5 pCi/gm and 30 pCi/gm, respectively], except for [two] soil samples which exceeded these limits.

In month, year, XDOH staff returned to the production area to resurvey and take soil samples after the licensee had cleaned the two areas that had exceeded release limits. Soil sample results were within the regulatory limits for radium-226 and natural uranium soil concentrations of [5 pCi/gm and 30 pCi/gm, respectively].

6. Discussion of results of the State's site closure inspection(s).

On month date, XDOH staff performed a survey of ABC's XYZ site. The surveys were performed using [one-by-one sodium iodide probes and XXXX instruments]. The purpose of the survey was to allow ABC to release the X.X acres for unrestricted use. Two times background was used as

(27)

APPENDIX D - Sample NRC Determination Letter for Conventional Uranium Milling License

Month Date, Year
, Director
State Agency Address

Note: this word is superfluous. Delete.

Dear XXXX

We have completed review of your [Month Date, Year] submittal, regarding the proposed termination of ~~Radioactive~~ Material License, XX-XXXX-X, issued to ABC. The license covered the ABC's XYZ Site, a conventional uranium mill facility located near XXX, State. You requested in your submittal that the U.S. Nuclear Regulatory Commission make a determination that all applicable standards and requirements ~~pertaining to reclamation of~~ the XYZ Site ~~have been met~~.

delete comma

(NRC)

have been met for termination of the XYZ site license.

The process that we used to make the determination is set out in the Office of State and Tribal Programs STP Procedure SA-900. Our determination is based on two supporting bases: review of a Completion Review Report (CRR) documenting the State Department of Health (XDOH) staff's bases for its conclusion that all requirements have been met; and review of State Agreement State uranium recovery program, conducted under the Integrated Materials Performance Evaluation Program (IMPEP).

First, the information you have submitted in the CRR, dated [Month Date, Year,] documents that the XDOH has performed a complete review of the XYZ Site for compliance with regulatory and license requirements. XDOH's review covered all necessary technical areas and regulatory requirements relating to reclamation of the XYZ Site including geotechnical engineering, surface water hydrology and erosion protection, radiation cleanup and control, and groundwater protection. XDOH also conducted appropriate inspections of site reclamation activities at the XYZ Site. Based on the review findings documented in the CRR, XDOH concluded that the XYZ Site has met all regulatory and license requirements.

Second, the most recent IMPEP review of the State Agreement State Program, conducted in [Month Year] concluded that the State program is adequate to protect public health and safety, and compatible with NRC's regulatory program. This finding is consistent with previous State program evaluation findings.

Based on our review of the above information and in accordance with the provisions at 10 CFR 150.15a(a) and Section 274c of the Atomic Energy Act of 1954, as amended, we determine that all applicable standards and requirements for the protection of the public health, safety and the environment have been met for the termination of the ~~Radioactive~~ Material License, XX-XXXX-X.

(28)

Misplaced

Appendix D – NRC Determination Letter (Conventional)

A copy of our evaluation report, without associated attachments, entitled "Documentation of NRC Review on the Termination Findings of the ABC's Uranium Milling License Submitted by the State Department of Health" is enclosed.

If you have any questions, or we can be of further assistance, please contact me or STP Staff Name at (301) 415-XXXX.

Sincerely,

STP Director
Office of State and Tribal Programs

Enclosure:
As stated

Note: correct term usage

(29)

Documentation of NRC Review on the Termination Findings of the ABC's XYZ Uranium Milling License Submitted by the XXXX State Department of Health

Licensee: A... B... C... (ABC) Licensee No.: XX-XXXX-X Location: Area: approximately XXX acres Type of License: Conventional Uranium Milling License Full / Partial License Termination: Full License Termination

1. Documentation of major events/activities related to the review of the XYZ ~~proposal~~ CRR X

1. On [month date, year], the NRC staff received a letter from the U.S. Department of Energy (DOE) regarding the Long-Term Surveillance Plan (LTSP) for the ABC's XYZ site. The DOE letter can be found in Attachment X.

2. On [month date, year], NRC staff received the ABC's XYZ draft ~~proposal~~ CRR from XDOH. A letter dated [month date, year] with a copy of the XDOH's draft Completion Review Report (CRR) can be found in Attachment X. X

3. The review was conducted by an NRC staff team. A list of NRC staff technical reviewers can be found in Attachment X. X

4. On [month date, year], NRC staff discussed the review process and status of NRC's review of the XYZ's draft ~~proposal~~ CRR at a meeting with DOE, XDOH and ABC representatives. X

5. On [month date, year], after completing review of the draft CRR, NRC staff provided comments to XDOH. The cover letter and attached comments can be found in Attachment X.

6. On [month date, year], NRC staff met at the ABC's XYZ site with DOE, XDOH and ABC representatives to observe site conditions and to discuss LTSP issues. NRC's comments (see Attachment X) on XDOH's draft CRR were also discussed.

7. On [month date, year], NRC staff received XDOH's response to the [month date, year] letter. The letter, dated [month date, year] and its attachment, ABC's response letter to NRC's comments, can be found in Attachment X.

8. On [month date, year], NRC and XDOH staff met to discuss the status of NRC's review, areas needing further information or clarification (see Table below), XDOH feedback and comments on the review process, future actions, and a proposed schedule for completion of the review.

The CRR, as opposed to a "proposal" is under review

30

Sample Table

No.	REVIEW AREA	POTENTIAL SIGNIFICANCE
1.	Radiation Cleanup and Control Appendix A to 10 CFR Part 40, Criterion 6(1)(ii), (5) and (6), Radiation Surveys and Soil Sample Analyses	Staff needs further supporting information to complete our review of XDOH's basis for its conclusion that the subject site has been cleaned up to the standards.
2.	Identify applicable standards / requirements	Provide brief description of further supporting information needed to complete NRC's review of XDOH's basis for its conclusion.

9. On [month date, year], NRC staff met with DOE, XDOH and ABC representatives to discuss the status of NRC's review, areas where further information or clarification were needed, and the schedule for completion of the review

10. On [month date, year], NRC staff received Revision #1 to the draft CRR from XDOH. XDOH indicated Revision #1 to the draft CRR provided responses to NRC's comments as documented in Attachment X. The [month date, year] letter and its attachment can be found in Attachment X.

11. On [month date, year], after completing review of Revision #1 to the draft CRR, NRC staff communicated with XDOH staff through e-mail on areas where further information or clarification was needed. On [month date, year], XDOH staff provided responses to NRC's comments through e-mail. These e-mails can be found in Attachment X.

12. On [month date, year], NRC staff provided comments to DOE on a draft LTSP. The comments reflect consideration of information contained in the draft CRR and resulting from NRC staff review of the draft CRR. The letter notes that because the mill tailings will be saturated for an indefinite period of time, and a large amount of water is impounded behind the dam, the tailings impoundment system is formally classified as a dam. To meet Federal obligations under the requirements of the National Dam Safety Program Act, the dam must be inspected at regular intervals. The letter concludes that additional inspection items must be included in the LTSP to meet applicable requirements. The comment letter and its attachment can be found in Attachment X.

13. On [month date, year] , NRC staff received the final CRR from XDOH. Following review, NRC staff concluded that the final CRR addressed all NRC's comments and provided XDOH staff's bases for its conclusion that the ABC's XYZ Site has met all regulatory and license requirements. The letter and its attachment can be found in Attachment X.

X

X

delete comma

14. The five issues identified during the [month date, year] meeting were closed based on additional information documented in the final CRR (Items X-X) or based on information provided in the [month date, year] letter from NRC to DOE (Item X). This is summarized in the Table below.

Sample Table

No.	REVIEW AREA	COMMENTS
1.	Radiation Cleanup and Control Appendix A to 10 CFR Part 40, Criterion 6(1)(ii), (5) and (6), Radiation Surveys and Soil Sample Analyses	Additional information is documented in the Radiation Cleanup and Control portion of the final CRR.
2.	Identify applicable standards / requirements	Additional information is documented in the XXXX portion of the final CRR.

B. Documentation of review comments on items specified in the STP Procedure SA-900 "Termination of Uranium Mill Licenses in Agreement States."

1. A brief description of licensee's activities associated with decommissioning, tailings remediation and/or groundwater cleanup.

   Comment: This information is provided in section X of the final CRR. The submitted information was found to be complete.

2. Documentation that the completed surface remedial actions were performed in accordance with applicable standards and requirements.

   Comment: This information is provided in section X of the final CRR. XDOH staff reviewed geotechnical stability, surface water hydrology and erosion protection, and radon emanation aspects of the reclamation of ABC's XYZ site. Based on its evaluation, [redacted] concluded that reclamation of the site has met all applicable standards and conformed with design specifications. The submitted information was found to be acceptable.

2. Documentation that the completed site decommissioning actions were performed in accordance with applicable standards and requirements.

   Comment: This information is provided in section X of the final CRR. ~~It is stated that~~ ABC's initial measurement indicated that XX% of all gamma and soil sample grids were below the radium regulatory limit. Following the initial surveys, all gamma grids and soil grids that were in excess of limits were excavated until results indicated concentrations below the applicable limit. XDOH data confirm that ABC's sampling process was valid. It was concluded by XDOH that residual radioactive material in all the areas potentially impacted by the mill operation were cleaned up to the State standards. The submitted information was found to be acceptable.

4. Documentation that the completed groundwater corrective actions, if necessary, were performed in accordance with applicable standards and requirements.

   Comment: This information is provided in section X of the final CRR. XDOH's review of all groundwater quality data has determined that the hazardous constituents in the tailings impoundment (uranium, Ra-226, Ra-228, Th-230, arsenic, nickel, and thallium) are stable in groundwater within the range of natural variability and remain below regulatory limits. ~~It was~~ concluded by XDOH that the closure of ABC's XYZ site is in compliance with XXXX State groundwater regulations associated with uranium mill closure. The submitted information was found to be acceptable.

5. Discussion of results of State's site closure inspection(s).

   Comment: This information is provided in section X of the final CRR. ~~It is assumed that~~ XDOH staff ~~has~~ performed appropriate site reclamation inspections over the years as site remediation moved from one phase to the next. XDOH employed inspection staff or provided specialized consultants to review and verify all important aspects of site closure. ~~It was concluded that results of~~ XDOH staff site inspections have provided a presence to ensure that site reclamation activities were performed as required by regulation and license conditions. The submitted information was found to be acceptable.

6. For partial terminations, documentation that release of a portion of the site will not negatively impact the remainder of the site to be closed at a later date.

   Comment: Not applicable. This is a full license termination.

7. IMPEP review of the XDOH uranium recovery regulatory program

   Comment: Based on [year] IMPEP review, the XDOH uranium recovery program was found to be satisfactory based on the IMPEP evaluation criteria. (A satisfactory rating is the highest rating possible for each IMPEP common and non-common performance indicator.) The overall XXXX (State name) Agreement State program was found to be adequate to protect public health and safety and compatible with NRC's program. The IMPEP team had one recommendation in the Uranium Recovery area that the State develop additional specialized inspection procedures.

Based on review of the above information, as specified in the STP Procedure SA-900, and in accordance with the provisions at 10 CFR 150.15a(a) and Section 274c of the Atomic Energy Act of 1954, as amended, the staff determines that all applicable standards and requirements have been met for the termination of the ~~Radioactive~~ Material License, XX-XXXXX-X.

(33)

APPENDIX E -- Sample NRC determination letter for Non-conventional Uranium Milling License

Month Date, Year

, Director
State Agency Address

Dear XXXX

We have completed our review of your [Month Date, Year] and [Month Date, Year] submittals regarding the proposed termination of the Radioactive Material License, XX-XXXX-X, issued to ABC's XYZ Site, an in-situ leach uranium recovery facility located near XXX, State. You requested in your [Month Date, Year] submittal that the U.S. Nuclear Regulatory Commission (NRC) make a determination that all applicable standards and requirements ~~pertaining to reclamation of~~ have been met for the termination of the XYZ Site ~~have been met~~. license

The process that we used to make the determination is set out in the Office of State and Tribal Programs (STP) Procedure SA-900. Our determination is based on two supporting bases: review of a Completion Review Report (CRR) documenting the State Department of Health (XDOH) staff's bases for its conclusion that all applicable standards and requirements have been met; and review of State's Agreement State uranium recovery program, conducted under the Integrated Materials Performance Evaluation Program (IMPEP).

As indicated in STP Procedure SA-900, closure of an in-situ leach uranium recovery site requires a demonstration that the groundwater has been adequately restored, all the wells have been closed and plugged according to the appropriate State statute, disposal or transfer of radioactive material is documented, and radiation surveys and confirmatory soil samples indicate that the site meets applicable standards and requirements for ~~release~~. license termination

First, the information you have submitted indicates that the groundwater has been restored by the licensee to the satisfaction of XDOH. All the wells have been plugged and abandoned by the licensee as authorized by XDOH. Based on XDOH's review of the license termination, you reported that proper disposition of radioactive materials took place at the site and there has been no on-site disposal of radioactive materials; therefore, there is no need to transfer ownership of land to the State or the Federal Government

XDOH has reviewed the results of radiation surveys submitted by the licensee and performed confirmatory surveys for the subject site. Post-cleanup surveys conducted by XDOH indicate that the site has been decontaminated to a radiation level that meets the State criteria. According to the XDOH report, the analysis of soil samples indicates the radium-226 and Thorium-230, and uranium concentrations were below the release criteria of [insert derived criterion 6(6) values]. The statements made in the submittals indicate that the XDOH has adequately determined that all applicable standards and requirements have been met by the licensee.

[State]

Second, the most recent IMPEP review of the State Agreement State Program, conducted in [Month Year,] concluded that the ~~Texas~~ program is adequate to protect public health and safety, and compatible with NRC's regulatory program. This finding is consistent with the previous State program evaluations.

Based on our review of the above information and in accordance with 10 CFR 150.15a(a) and Section 274c of the Atomic Energy Act of 1954, as amended, we determine that all applicable standards and requirements for the protection of the public health, safety and the environment have been met for the termination of the ~~Radioactive~~ Material License, XX-XXXX-X.

A copy of our evaluation report, without associated attachments, entitled "Documentation of NRC Review of the Termination Findings of the ABC's Uranium Mill License Submitted by the State Department of Health" is enclosed.

If we can be of further assistance in this regard, please contact me at (301) 415-3340 or STP Staff Name at (301) 415-XXXX.

Sincerely,

STP Director
Office of State and Tribal Programs

Enclosure:
As stated

(35)

Documentation of NRC Review on the Termination Findings of the ABC's XYZ Uranium Milling License Submitted by the State Department of Health

Licensee: A...B...C... (ABC)
License No.: XX-XXXX-X
Location:
Area: approximately XXX acres
Type of License: Non-conventional (in-situ leach) Uranium Milling License
Full / Partial License Termination: Full License Termination

The following items were reviewed based on the Office of State and Tribal Programs (STP) Procedure SA-900 "Termination of Uranium Mill Licenses in Agreement States."

1. A brief description of licensee's activities associated with decommissioning and license termination.

   Comment: This information is provided in a State Department of Health (XDOH) letter dated [Month Date, Year] (Attachment 1). Acreage information for the mine site is provided in a XDOH letter dated Month Date, Year (Attachment 2). X

2. Groundwater information which demonstrates that the groundwater has been adequately restored to meet applicable standards and requirements.

   Comment: This information is provided in Enclosure X of the XDOH letter dated Month Date, Year.

C. Documentation that the production, injection, and monitoring wells have been closed and plugged in accordance with applicable standards and requirements.

   Comment: This information is provided in Enclosure X of the XDOH letter dated Month Date, Year.

D. Decommissioning information which documents that all contaminated materials have been properly disposed of, transferred to licensee(s) authorized to possess such materials, or meet applicable standards and requirements for release.

   Comment: This information is provided in the XDOH letter dated [Month Date, Year.] XDOH indicated that any material and/or equipment which was contaminated was transferred to another licensed mine site, decontaminated and released for unrestricted use, or disposed of at a licensed byproduct disposal facility. X

E. Discussion of results of radiation survey and confirmatory soil samples which indicates that the subject site meets standards and requirements for release.

   Comment: This information is provided in the XDOH letter dated [Month Date, Year.] Results of radiation surveys and confirmatory soil samples can be found in

Enclosure X of the letter. Additional information related to the results of two confirmatory soil samples is provided in the [Month Date, Year] letter.

F. Discussion of results of the State's site closure inspection(s).

Comment: This information is provided in the Enclosure X of the XDOH letter dated [Month Date, Year] As stated above, additional information can also be found in the [Month Date, Year] letter.

G. For partial terminations, documentation that release of a portion of the site will not negatively impact the remainder of the site to be closed at a later date.

Comment: Not applicable. This is a full license termination.

H. IMPEP review of the [State] uranium recovery regulatory program

Comment: According to the results of the Year IMPEP review, the State uranium recovery regulatory program was found to be satisfactory based on the IMPEP evaluation criteria. (A satisfactory rating is the highest rating possible for each IMPEP common and non-common performance indicator.) The overall State Agreement State program was found to be adequate to protect public health and safety, and compatible with NRC's program.

Based on review of the above information, as specified in STP Procedure SA-900, and in accordance with the provisions at 10 CFR 150.15a(a) and Section 274c of the Atomic Energy Act of 1954, as amended, the staff determines that all applicable standards and requirements have been met for the termination of the ~~Radioactive~~ Material License, XX-XXXX-X.

Project Manager: _____ Date: _____
Full Name, Title
Office of State and Tribal Programs

Office Director: _____ Date: _____
Full Name, Director
Office of State and Tribal Programs