

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matters of:	)	
PHILADELPHIA ELECTRIC COMPANY <u>et al.</u>	)	Docket Nos. 50-277
(Peach Bottom Atomic Power Station,	)	50-278
(Units 2 and 3)	)	
METROPOLITAN EDISON COMPANY <u>et al.</u>	)	Docket No. 50-320
(Three Mile Island Nuclear Station,	)	
Unit No. 2)	)	
PUBLIC SERVICE ELECTRIC AND GAS CO.	)	Docket Nos. 50-354
(Hope Creek Generating Station,	)	50-355
Units 1 and 2)	)	
ROCHESTER GAS AND ELECTRIC CORPORATION	)	Docket No. STN 50-485
<u>et al.</u>	)	
(Sterling Power Project, Nuclear Unit 1)	)	

NRC STAFF TESTIMONY OF  
HUBERT J. MILLER

(Release of Radon-222 from Uranium Mills and Tailings Piles--  
Alleged Deficiencies Nos. 7, 10, 13, 14, 16, 17, 18, 21)

I am Section Leader, New Facilities Section, Uranium Recovery Licensing Branch, Division of Waste Management, Nuclear Regulatory Commission. A Statement of My Professional Qualifications appears in the Perkins<sup>1</sup> record (Fg. Tr. 2393).

<sup>1</sup>Duke Power Co. (Perkins Nuclear Station, Units 1, 2, and 3), Docket Nos. STN 50-488, 50-489, and 50-490. All transcript references in this testimony are from the Perkins record.

This testimony addresses certain alleged deficiencies which the intervenors in these proceedings have asserted as to the Perkins record. Specifically, I have reviewed and analyzed alleged deficiencies Nos. 7, 10, 13, 14, 16, 17, 18, and 21 as well as the Intervenor's Response to Applicants' Joint Motion for Summary Disposition (prepared by Dr. Chauncey Kepford and Ms. Sue Reinert as supplemented by Affidavit of Dr. Robert Pohl) concerning these alleged deficiencies. The results of my analysis are set forth in this testimony and show that the above asserted deficiencies in the Perkins record are without foundation.

## I. GENERAL

### BACKGROUND

Previous testimony by staff witnesses Magno and Gotchy (Perkins record Fg. Tr. 2369) estimated releases of radon-222 from uranium milling activities during and following mill operation. The factors which determine what the releases will be (such as ore grade, uranium recovery efficiency, emanating power of tailings, area and thickness of tailings impoundments, and so on) are variable and site-specific. To account for this variation, the staff made estimates based on values for these factors which it considered were average for the industry after reviewing the ranges of values that exist.

In certain instances, most notably in estimating persistent radon releases following mill operation, the staff based estimates on its licensing requirements for mill tailings management. Furthermore, to account for uncertainty concerning the performance of isolating covers placed over the tailings when

subject to weathering forces, estimates of radon release following final covering of the tailings were purposely inflated by the staff.

Questions have been raised by intervenors in the above captioned proceedings in various filings made with the Appeal Board concerning the staff milling radon-222 release estimates. These questions principally relate to the following:

1. Adequacy of regulatory authorities - will the tailings be covered and stabilized as the staff testified?
2. Uranium milling and mill tailings regulatory requirements - for example, how will the objectives for tailings management and disposal, including those for radon control, be accomplished? How will the criteria for radon control be implemented and compliance determined?
3. Isolation of tailings over the long-term - how will the tailings isolating cover perform over the long term when subject to weathering forces? What long term regulatory control will be maintained over the long term?

These questions have to do with the program for regulating uranium mills in the United States. Therefore, before addressing specific questions which have been raised, a general description of this program, both its institutional and technical aspects, is provided. This approach also allows updating the record concerning several related and important events which have occurred since hearings on the radon matter were held in the Perkins proceeding, namely: (1) passage of the Uranium Mill Tailings Radiation Control Act (UMTRCA) of

1978 (P.L. 95-604) in November of 1978 and a subsequent amendment (PL 96-106 enacted on November 9, 1978); (2) issuance of the draft Generic Environmental Impact Statement (GEIS) on Uranium Milling (NUREG-0511) in April 1979; and (3) the proposal of regulations by the NRC on uranium milling and mill tailings in August of 1979 (44 Fed Reg 50015). Copies of the above mentioned documents are attached for the convenience of the Appeal Board and parties.

In this testimony, I will demonstrate that previous staff testimony concerning radon-222 releases from uranium mills is reasonably accurate, and where there is uncertainty, that the previous testimony is conservative (estimates of releases are on the high side).

#### ADEQUACY OF REGULATORY AUTHORITIES

The current framework for regulation of uranium mills and mill tailings was established by UMTRCA as amended. The basic purposes of UMTRCA were to: (1) establish a program for taking remedial action at some 22 inactive uranium mill tailings sites where no previous, substantial steps had been taken to provide permanent containment of the tailings and radon emissions, (Title I of the Act); and, (2) establish a firm regulatory program which would assure past problems were not revisited at currently active and future mill sites (Title II of the Act).

The Department of Energy (DOE) is responsible under Title I for taking remedial actions at the inactive sites to bring them into conformance with generally applicable (non-site and method specific) criteria to be established by the Environmental Protection Agency (EPA) for such sites. Concurrence of the NRC

in the specific remedial action program at each site will be required. On the basis of our close working relationship with EPA on this matter, which has included review of EPA's draft criteria, and because NRC will be directly involved with each remedial action, I expect that these sites will meet the same technical standards as described below for active mill tailings sites.

Title II of UMTRCA strengthened the NRC's authority to license and regulate uranium mill tailings by defining them as a new category of directly licensable byproduct material under the Atomic Energy Act of 1954. Before enactment of the new mill tailings legislation, the NRC lacked direct authority to license tailings--it had authority only over the source material produced in milling. Once milling operations ceased and the source material license was terminated, the NRC's continued authority was unclear. The staff could require tailings stabilization prior to source material license termination, but could exercise no continuing control thereafter. This led to some uncertainty about NRC's ability to enforce final stabilization of tailings after mill operations ceased. UMTRCA, by providing for the direct control of tailings as licensable material, removed this uncertainty.

In addition to providing for direct licensing control, the Congress explicitly authorized what had previously been staff practice of requiring financial sureties from licensees to ensure that mill decommissioning and mill tailings reclamation and stabilization will be, in fact, carried out. Another provision of UMTRCA specifically required reclamation and state or federal ownership of tailings and their disposal sites (as discussed more completely below).

The Act further established requirements with which Agreement States must comply in licensing uranium mills and mill tailings (byproduct material). In short, these statutory requirements are designed to assure that control of mill tailings in Agreement States is the same as that provided under NRC regulation in non-Agreement States. More specifically, states are required by November 8, 1981, to have a program which includes technical standards governing tailings management "...which are equivalent, to the extent practicable, or more stringent than, standards adopted and enforced by the Commission..." States are also required by that time to follow certain procedural requirements such as preparing documented, independent assessments of their mill and mill tailings licensing actions. By amendment to UMTRCA, the Congress required that during the interim before November 8, 1981, states must meet these new requirements, to the extent practicable, and charged the Commission with seeing that this is done. The staff has taken the position that, under a Commission Policy of offering technical assistance to Agreement States regulating uranium mills (43 Fed Reg 17879), it will assure that the requirements for documented assessments and compliance with minimum standards will be met in each Agreement State licensing action. Where circumstances require it, this will involve preparation of the required documented independent assessments by the NRC staff in support of the State licensing actions.

In conclusion, the authority to assure that tailings will ultimately be covered and stabilized, as the staff previously testified, is firm; moreover, UMTRCA mandates proper tailings disposal. Furthermore, the Congress has established requirements which assure that tailings management is carried out to the same technical standards in all states.

### URANIUM MILLING REGULATORY REQUIREMENTS

About three years ago, a major program of upgrading mill tailings management practices was undertaken by the staff. The staff's upgrading program included preparation of the GEIS on uranium milling to support adoption of formal regulations on milling and tailings disposal, and initiation of a major program of field research studies at active mills also to support this. Recognizing that it would take some time to complete these programs and having a sense of urgency about the need for immediate steps to avoid continuation of past practices, the staff issued interim performance objectives for management of mill tailings (Branch Position-Uranium Mill Tailings Management, Fuel Processing and Fabrication Branch, May 1977; copy attached) to guide continued licensing of mills until the formal regulations could be developed. These criteria, which included a limit upon radon releases from tailings impoundments after mill operations cease (no greater than twice background radon exhalation levels permitted), formed the basis for previous testimony.

As mentioned previously, the staff issued the draft GEIS in April 1979 and formally proposed regulations<sup>2</sup> incorporating conclusions of the GEIS and UMTRCA in August 1979. The proposed regulations are summarized below in general terms, with primary emphasis given to those aspects relating to the questions which have been raised in this proceeding. Where appropriate, the relationship between the proposed regulations and the interim performance

<sup>2</sup>Attention is specifically invited to Proposed Appendix A to 10 CFR 40, "Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores", 44 Fed Reg 50020-50022. This is hereafter referred to as Appendix A.

objectives is discussed. The requirements of proposed regulations are very similar to the interim performance objectives. The regulations are more specific, reflecting experience gained in applying the interim criteria.

In proposing the regulations, the staff considered, in addition to potential health risks, a full range of factors which could influence the cost and practicability of tailings disposal alternatives (Section 12.3 of the GEIS). For example, with regard to radon control limits, variability in factors such as the radon attenuation properties of potential cover materials, the volume, area and effective thickness of the tailings pile, and ore quality was considered. The basic conclusion of the staff was that meeting proposed requirements was economically feasible under any of the conditions examined. Disposing of and stabilizing tailings involves conventional earthmoving operations similar to those performed in mining and mining reclamation operations and are certainly practicable. Furthermore, the staff has, in fact, already worked out with all its licensees specific programs of tailings disposal which essentially comply with proposed requirements. The mill operators have immense experience in these kinds of operations from their mining activities which are usually much larger in scale. They would not be committing to programs that experience indicates would not be practicable or too costly. The mill operators and applicants have proposed the specific programs being licensed. Therefore, meeting staff requirements for tailings disposal is feasible from both cost and engineering points of view.

It must be stressed that the problem of tailings disposal is not a one-dimensional issue of controlling radon releases. Other significant concerns are providing



for long-term stability of the tailings containment and protecting groundwater. There are interrelationships between these concerns and sometimes they compete. For example, if the only concern was radon control, placing the tailings in as deep a location as possible (such as into mines) would clearly be desirable. However, concern for protecting groundwater makes this undesirable in some cases. For clarity in presenting the regulatory requirements, I discuss each major concern in turn. However, to illustrate how tailings disposal programs have been developed to account for all concerns at the same time, I describe several specific tailings disposal programs which have been developed in licensing cases over the past several years. This is also useful because the tailings disposal requirements are expressed in terms of performance objectives to account for the highly site-specific nature of the tailings disposal problem. The details of a program must be developed to account for site specific conditions. These cases show how the performance objectives of proposed regulations were met at several sites.

#### Radon Control

The proposed regulations specify the following:

"Sufficient cover should be placed over the tailings to result in a calculated surface exhalation of radon resulting from the tailings of less than 2 pCi/m<sup>2</sup>-s; that is, incremental releases of radon above that resulting from radium occurring naturally in cover materials shall be less than 2 pCi/m<sup>2</sup>-s." (From Appendix A, Criteria 6.)

The proposed limit on radon exhalation rate has been set as an allowable increment above background, as opposed to a multiple of background rates as was the case with the staff's interim criteria (i.e., less than twice background

rate required). This means that an equal level of radon control will be required at each site, as opposed to effectively varying levels of control resulting from a limit specified as a multiple of a variable background rate. Magno testimony selected a conservative value of background flux in estimating releases under the "twice background" criteria: a release rate of 2.5 pCi/m<sup>2</sup>-s above background levels was estimated. Thus the Magno estimates are higher than will be the case under new regulations.

The proposed radon control level is expressed as a requirement to provide enough cover over the tailings to reduce radon flux originating from the tailings to less than 2 pCi/m<sup>2</sup>-s on a calculated basis; essentially this will result in a 2 pCi/m<sup>2</sup>-s flux rate increment over background rates because radioactivity occurring naturally in the overburden would be excluded in the calculations. The methods that are used by the staff in calculating required thicknesses when reviewing proposed tailings disposal plans are presented in Appendix P of the GEIS.

The compliance monitoring program that will be conducted at the time of final tailing stabilization will primarily involve confirming that final cover thicknesses and shapes are as specified in approved tailings disposal plans. Radon concentrations in air are extremely variable because of the large number of factors that influence the rate at which the radon is released (temperature, pressure, wind speed, etc.). It would take as long as a year to obtain measurements which smooth out the variations that occur as a result of these factors. Thus, radon measurements could not be used to guide the tailings covering operation. For this reason, surface radon flux and air concentration

measurements would be used to confirm that the effective radon attenuation by the in-place cover materials was essentially as predicted when the required thicknesses were initially determined (See Sections 10.3 and 14.1 of the GEIS.)

#### Long Term Stability

Because of the long-lived nature of the tailings hazard, it is obvious that whatever containment is provided for tailings and radon must be stable for very long periods of time. Furthermore, because the period over which tailings will remain a hazard is much longer than any human institution can be relied upon to endure, it is desirable to avoid reliance on such institutions to contain the hazard. Therefore, the primary means of isolating mill tailings must be by stable physical barriers. A fundamental objective of the staff as identified in the proposed regulations is that tailings disposal be accomplished in a manner which does not require ongoing, active maintenance to preserve isolation. (See Criteria 12, Appendix A.)

The proposed regulations delineate a series of more specific technical siting and design requirements which are essentially those applied in ongoing mill licensing activities in implementing the staff's broad interim performance objectives. These requirements placed on applicants and licensees by the staff are summarized as follows:

1. Tailings disposal areas shall be located at sites where disruption and dispersion by natural forces are eliminated or reduced to the maximum extent reasonably achievable. (See Criteria 2 of Appendix A.)

2. The "prime option" for tailings disposal is below grade burial in specially excavated pits or in mines. (See Criteria 3 of Appendix A.) Where conditions do not permit this or make it undesirable, above grade burial is permitted subject to meeting criteria intended to reduce or eliminate erosion potential at the site (as taken from Criteria 4, Appendix A):
  - (a) "Upstream rainfall catchment areas must be [minimized] to decrease the size of the maximum possible flood which could erode or wash out sections of the tailings disposal area.
  - (b) Topographic features shall provide good wind protection.
  - (c) Embankment slopes shall be relatively flat after final stabilization to minimize erosion potential and to provide conservative factors of safety assuring long-term stability. The broad objective should be to contour final slopes to grades which are as close as possible to those which would be provided if tailings were disposed of below grade; this would, for example, lead to slopes of about 10 horizontal to 1 vertical (10h:1v) or less steep. In general, slopes should not be steeper than about 5h:1v. Where steeper slopes are proposed, reasons why a slope less steep than 5h:1v would be impracticable should be provided, and compensating factors and conditions which make such slopes acceptable should be identified.
  - (d) A full, self-sustaining vegetative cover shall be established or riprap employed to retard wind and water erosion. Special concern shall be given to slopes of embankments.
  - (e) The impoundment shall not be located near a potentially active fault that could cause a maximum credible earthquake larger than that which the impoundment could reasonably be expected to withstand.
  - (f) The impoundment, where feasible, should be designed to incorporate features which will promote deposition. For example, design features which promote deposition of sediment suspended in any runoff which flows into the impoundment area might be utilized; the objective of such a design feature would be to enhance the thickness of cover over time."
3. Tailings covers shall be no less than 3 meters and plastic or other synthetic caps should not be used. As described in more detail in Section 12.3.3.7 of the GEIS, the staff considers it not prudent to rely upon thin covers

which, at least for the short term, could provide radon reduction to the low levels required. The desire to minimize the potential for, and potential effects of, disruption of tailings and tailings covers by natural and human forces dictates this approach.

In developing the GEIS and requirements concerning tailings management, and more specifically those related to long term stability, the staff conducted a systematic, comprehensive study<sup>3</sup> of potential failure events which could occur over very long periods of time and of the factors which contribute to them. In addition to identifying the potential failures of concern, specific siting and design features which can be employed to minimize or eliminate them were also identified. Because of variability in the factors which can contribute to failure (topography, climate, nearness to faults, etc.), the problem of reducing erosion potential and assuring long term impoundment stability must obviously be dealt with on a site specific basis. This matter is a major part of the tailings management program development effort at each site; it is certainly a major concern in our licensing reviews.

While precise scenarios cannot be predicted, I conclude that erosion can be virtually eliminated for thousands of years by following the requirements of our proposed regulations. My conclusion is based upon the long-term stability

<sup>3</sup>J. D. Nelson and T. A. Shepherd, "Evaluation of Long-Term Stability of Uranium Tailings Disposal Alternatives," Colorado State University, April, 1978.

study we conducted in preparing the GEIS (referred to above), review of the literature and consultations with experts in the field of wind and water erosion control, and my personal involvement in development of mill tailings disposal programs at mills in the United States.

The most significant water erosion related effects occur in cases involving channelized flow, where high velocities and flowrates can cause scouring and transport of earthen materials. Floods are the most disruptive of water erosion events. Location of piles near channels of any appreciable size (either ephemeral or perennial streams) must and is being avoided. Areas having sizable upstream rainfall catchment, subject to flooding where rainfall runoff will concentrate in topographic lows or gullies, are not permitted to be used for tailings sites. Our evaluations of flooding potential consider, and our corresponding design and siting decisions are based on, the so-called probable maximum flood. This is the largest possible flood that is reasonably expected to occur at a site.

Erosion and gullying resulting from overland sheet flow and from wind erosion can be eliminated. Full, surface covers such as vegetation and rip rap or stone mulch can be entirely effective. (Rip rap is a cover of large rock and cobble.) Rip rap or stone mulch will entirely eliminate erosion by wind. It has been demonstrated that certain soil particle and rock sizes (greater than about 1 mm in diameter) are non-erodible, even under gale force wind. Where rip rap is properly installed, virtually the same statement can be made regarding control of water sheet erosion and gullying as is made for wind erosion control.

(See for example, W. S. Chepil, et. al., "Vegetative and Non-vegetative Materials To Control Wind and Water Erosion", Soil Science Society Proceedings, 27:87-89, 1963; and, C. G. Clyde, "Manual of Erosion Control Principles and Practices", Utah Water Research Laboratory, UWRL/H-78/02, June 1978.)

Rip rap, being inherently more stable than vegetative cover, is expected to provide very reliable long-term erosion control and is being incorporated into tailings programs particularly in semi-arid regions. Properly applied, rip rap provides an "armoring" of the soil cover, the large rock and cobble sheltering erodible fractions. Vegetation and rip rap both have the effect of holding water, reducing the velocities and amounts, and thus erosive force of runoff. Rip rap can also create a favorable habitat for vegetative growth between individual pieces of rock. Eolian soil particles can collect between rocks, forming a favorable environment for invading plant species which provide additional erosion protection. The effectiveness of rip rap is indicated by so-called "desert pavements" which have been known to form where coarse rock and gravel on the surface stabilize landforms for very long periods of time. For example, alluvial deposits in Death Valley have been stable for 20,000 years because of the armoring provided by such pavements.

Obviously, it is not possible to predict quantitatively the performance of tailings impoundments over the more than 100 thousand year period that the tailings will remain a hazard. To suppose this could be done would be an illusion. Beyond several thousands years, geologic and climatic processes and changes will determine the stability of tailings isolation as discussed in the GEIS, Section 9.4.1. There will almost certainly be some failures at some

time in the future resulting in increased releases of radon (for as long as institutional controls are provided, these should be remedied). On the other hand, it is entirely possible that the tailings cover will increase over time at some sites; tailings disposal programs are being designed to make this happen.

In any event, the very long-term future of tailings impoundments is indefinite. To account for this, staff witness Magno stated his main estimates of ongoing tailings releases as a range of from 1 to 10 Ci/AFR-year. (To provide perspective, he also stated what releases would be if all cover were stripped away -- 110 Ci/AFR-year -- without postulating a specific failure scenario.) Releases from tailings impoundments that remain intact (about 1 Ci/AFR-year) were simply inflated by a factor of ten in recognition of such uncertainty.

Staff witness Gotchy's estimates made in previously mentioned testimony were extremely conservative. The effectiveness of tailings covers was postulated to be reduced to 10 percent of the original level after 100 years, and effectively to fail entirely (all cover removed by erosion) in 500 years. This scenario is highly conservative in light of the steps which are being taken to provide long-term tailings stability as discussed above.

In addition to the physical control measures, it is important to discuss the institutional control which will be exercised at tailings sites. As stated in the GEIS (Section 12.3.10), while the primary means of disposing of tailings must be by physical barriers, it is prudent to provide additional control and monitoring of sites as a supplementary measure for as long as it is possible.



The Commission recommended to Congress (on the basis of early staff conclusions formed in developing the GEIS) that ownership of tailings sites by a government agency be required. As a result, UMTRCA and the proposed regulations implementing it, contain this requirement. With the technical solutions currently being worked out for the problems of tailings disposal, the staff anticipates that only a low level of passive monitoring (such as annual site visits) will be necessary at most sites. (See GEIS Sections 10.4, 12.3.10, and 14.1 for more discussion concerning long-term monitoring.) To support what ongoing long-term surveillance will occur, the staff has proposed a long-term funding arrangement which would involve mill operators contributing monies to defray costs of ongoing surveillance activities. (See GEIS Summary Section 8.2.2 and main text Section 14.3; see also Criteria 10, Appendix A.) Again, the Gotchy scenario is seen as conservative in light of the institutional arrangements which have been established to monitor the piles. Any failure of the impoundments, if it occurs, will not be a difficult thing to remedy. Repairs will be easy to carry out since they will be just a dirt moving operation.

In conclusion, given the steps being taken to isolate and stabilize tailings as discussed above, prior staff testimony has been very conservative with regard to the estimates of ongoing tailings radon releases.

#### Groundwater Protection

Proposed regulations specify the following (from Criteria 5, Appendix A):

"Steps shall be taken to reduce seepage of toxic materials into groundwater to the maximum extent reasonably achievable. This could be accomplished by lining the bottom of tailings areas and reducing the inventory of liquid in the impoundment by such means as dewatering tailings and/or recycling water from tailings impoundments to the mill... Also, tailings treatment, such as neutralization to promote immobilization of toxic

substances shall be considered. The specific method, or combination of methods, to be used must be worked out on a site-specific basis. While the primary method of protecting groundwater shall be isolation of tailings and tailings solutions, disposal involving contact with groundwater will be considered provided supporting tests and analysis are presented demonstrating that the proposed disposal and treatment methods will preserve quality of groundwater."

As discussed in Section 12.3.4 of the GEIS in summarizing the basis for proposed regulatory requirements concerning groundwater, the radionuclides involved tend to fall into a category of elements which ion-exchange or sorb onto underlying soil. Due to this phenomenon and the positive steps being taken by the staff to reduce seepage and avoid contact of tailings and solutions with groundwater, migration of nuclides will in most cases not be significant.

#### Other Requirements Affecting Radon Releases

Another pertinent requirement of the proposed regulations is that tailings dusting during milling operations be controlled by wetting or by chemically stabilizing exposed tailings surfaces. (See Criteria 8, Appendix A.) Furthermore, consideration must be given to tailings disposal methods which will allow phased covering and reclamation. These requirements will serve to reduce radon releases as well as particulate emission and migration from tailings piles.

Also, decommissioning of mill sites will require cleanup of ground contamination which may have occurred during mill operations to permit unrestricted use of the site. Therefore, there should be no significant, ongoing emissions of radon from areas on or near the mill site.

### Illustrative Tailings Management Programs

Figures 1 through 3 depict the details of several tailings disposal programs licensed by the staff within the past year. These illustrate how the licensing criteria of the staff are being met at new tailings disposal sites.

Figure 1 depicts tailings disposal in an open pit mine. A compacted clay liner is placed on the bottom of the pit and on its sides to minimize the amount of seepage that can flow away from the impoundment. As an added measure of protection, fill material is placed in the bottom of the pit below the tailings to assure that tailings are located only above the water table. Tailings are deposited into the pits in a slurry, excess solutions being decanted from the pit to a temporary surface evaporation pond. Following drying out of the tailings, they are covered with more than 10 feet of overburden and clay and then revegetated.

The final surface of the tailings cover is below that of the surrounding terrain where it is protected from weathering elements. The process is carried out in staged fashion as shown in Figure 2 to reduce the amount of time that tailings are uncovered. This is important as far as radon releases are concerned since, unlike what was assumed in past staff testimony, the entire volume of tailings will not be uncovered at one time.

Figure 3 shows a program where tailings are deposited in a pit which is specially excavated to hold tailings. Again, the bottom of the pit is lined to retard movement of solutions (a synthetic liner is used in this case). Excavated

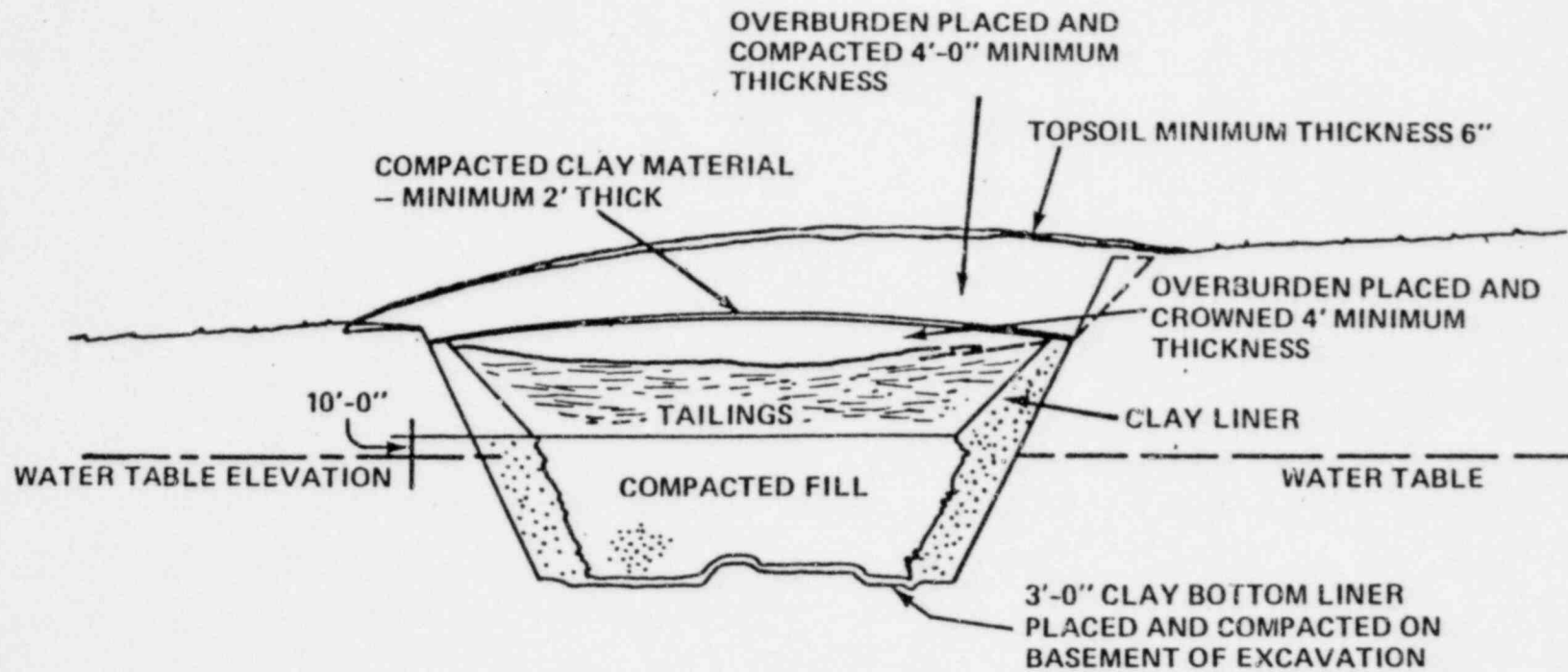


FIGURE 1. MINED-OUT PIT BURIAL-SLURRIED TAILINGS

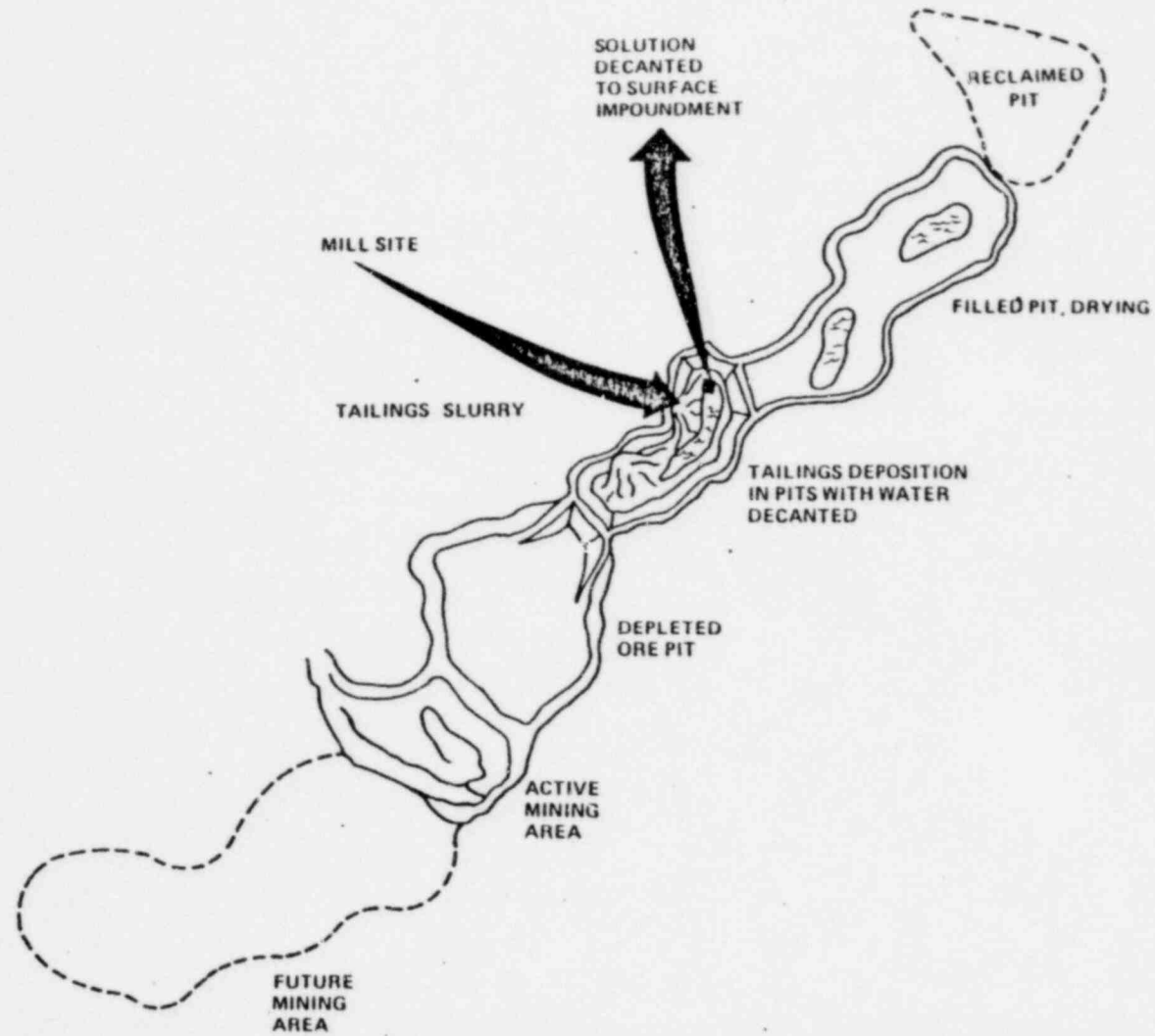
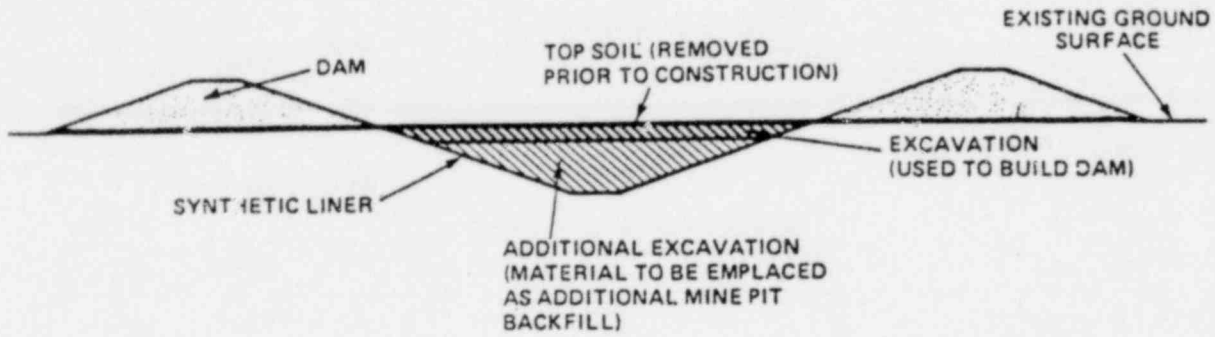
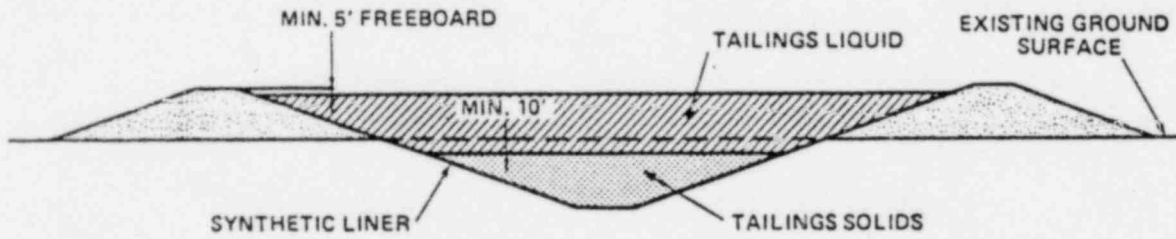


FIGURE 2. STAGED TAILINGS IMPOUNDMENT IN AN ACTIVE OPEN PIT MINE

TYPICAL CELL CONSTRUCTION



POST OPERATION/PRE-RECLAMATION



ABANDONMENT

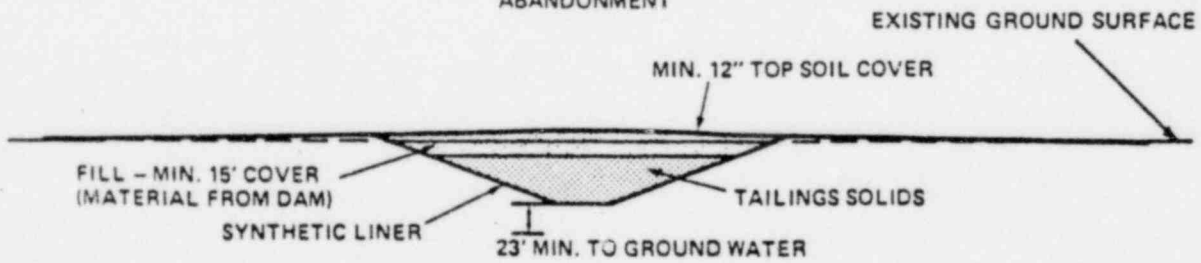


FIGURE 3 SPECIALLY EXCAVATED PITS FOR TAILINGS BURIAL

material is used to form temporary dikes during mill operation to provide volume needed for solids and solutions until solutions are evaporated. After drying out, tailings are covered with about 15 feet of soil cover, the final cover surface being even with the surrounding terrain. The materials used for dikes are pushed over the pit area to provide this cover.

Although not shown in the figure, this program also will be developed sequentially. Figure 3 shows one of four cells which will eventually be developed to contain tailings, the first one being covered when subsequent cells are being used.

Other new mill proposals undergoing active licensing review incorporate similar features intended to provide a long-term containment of tailings. These include tailings disposal in a series of elongated, parallel trenches below grade. Material, as it is excavated from one trench, is applied directly over tailings in an adjacent or nearby trench. In one case, tailings will be dewatered before placement in the trench (as opposed to being disposed of in slurry form) to facilitate the drying out process and to permit early covering. In another case of trench burial, excavation by a dragline is proposed with cover thicknesses of 50 feet or more being made possible by the mode of disposal.

The programs just described were developed for new projects. At existing mill sites, tailings have been disposed of on the surface behind dams made of tailings or earthen materials. On the basis of case by case evaluations, it will be determined whether tailings at the existing sites should be placed below grade or not. In some cases, newly generated tailings and existing

tailings both may be disposed of in a new below grade location. In other cases, existing tailings may be left in place while only new tailings are disposed of at new sites. In still other cases, deposition of tailings at the current site may continue. In any case, thick earthen covers will be placed over tailings impoundments upon final drying out and steps taken to provide erosion protection. Where tailings are left in place, this will involve contouring the pile and cover, so that slopes of embankments are very gradual and so that the least erosive drainage pattern possible is provided for what surface runoff might occur over the area. As discussed above, erosion protection measures, such as application of rip rap, will be taken.

#### RADON SOURCE NOT PREVIOUSLY ADDRESSED

There is an additional source of radon release which was not specifically addressed by Magno in his testimony. This source is tailings dust which can migrate from the tailings during milling operation. While it does not change my conclusion that the Magno testimony is reasonably accurate and, as a whole, conservative, this source is discussed for the sake of completeness. The associated releases are small when compared to the total release estimates made by Magno.

During periods of mill operation and tailings drying, Ra-226 has become dispersed from the tailings impoundment in particulate form by wind dusting at some mills. Any radium that has escaped from the pile and is left after cleanup will continue to emit radon and constitutes an on-going source not specifically addressed in the Magno testimony. Rather than attempting to estimate precisely



what releases might be from this source, an extreme upper bound is estimated using the tailings management scenario described by Magno with no control of dusting and mill site cleanup.

Specifically, on the basis of the characteristics of the Magno composite model mill, 13.8 ha of the tailings impoundment is dry and susceptible to dusting during the 26-year operational period and the 5-year drying period prior to reclamation. The remaining 42.9 ha is available for dusting during an average of 2.5 yrs during the 5-year drying period, since the wet fraction of the impoundment area is assumed to decrease linearly to zero during that time span. Thus, total dusting can be computed on the basis of a total of 535 ha-yrs of dry tailings in existence prior to reclamation. Assuming a conservative average dusting rate of  $1400 \text{ g/m}^2\text{-yr}$  and a factor of 2.5 as the dust to tails specific activity ratio, and using the value of 280 pCi/g of radium in the bulk tailings (equivalent to 0.10%  $\text{U}_3\text{O}_8$  ore grade), a total of 5.24 Ci of Ra-226 would be dispersed outside of the impoundment prior to reclamation. This amount of radium will produce about 347 Ci/yr of Rn-222. Based on an emanation coefficient of 0.2, about 70 Ci/yr of Rn-222 would be released to the atmosphere as long as all of the dispersed radium remained on the very upper surface of the ground as opposed to mixing in with the soil. This amounts to a release rate from this source of about 1.4 Ci/AFR-yr.

Estimates of the rate at which ground contamination is removed from the environment can be made to account for downward migration and loss through chemical binding. A so-called environmental half-life of 50 years was assumed by the staff in the GEIS (Appendix G-3). If this were applied, land contamination would essentially be eliminated as a radon source in less than 500 years.

This additional source, even when very conservatively evaluated, is well within the conservative expression of post-reclamation radon releases as being from 1-10 Ci/AFR-yr. No change in the Magno estimate is warranted on the basis of potential radon releases from dispersed radium dusts.

## II. RESPONSE TO SPECIFIC QUESTIONS AND ALLEGED DEFICIENCIES

With the background provided in Section I, more specific response is now given to Appeal Board questions and associated alleged deficiencies asserted by intervenors. The Appeal Board grouped the alleged deficiencies and questions into five categories of issues, two of which relate to mill tailings. The other three categories are addressed by staff witnesses Wilde and Lowenberg. The first category I address involves direct emissions of radon from mill tailings piles and the second relates to indirect emissions which could occur through water pathways. (Nos. 1 and 4 at pages 9-11 and 13 of ALAB-562, respectively.) Each part of these two issues and the associated alleged deficiencies are addressed in turn.

### EMISSIONS FROM MILL TAILINGS PILES

#### 1. Appeal Board Statement:

"The intervenors have cast doubt upon the accuracy of the value the staff has assigned to the emissions from uncovered tailings piles." (Deficiency #10; see also the affidavit of Dr. Robert O. Pohl.<sup>4</sup>)

#### Response:

The previous staff estimates of releases from uncovered tailings piles is reasonably accurate contrary to what is alleged in the intervenors' filings.

<sup>4</sup>This alleged deficiency reads as follows: "The affidavit of P. G. Magno calculates radon emissions of 1,130 curies per AFR through the inactive milling period. Following stabilization (sic), Magno's affidavit indicates an emission rate of between 1 and 100 curies per year. NT and EA are prepared to submit evidence, based on government documents, that measured emissions at actual mills are greater than computed in Mr. Magno's affidavit." The Pohl affidavit was submitted subsequently and is paraphrased in the staff response to the question.

The affidavit submitted by Dr. Pohl in support of intervenors' opposition to Licensees Joint Motion For Summary Disposition of Radon Issues (which presents the specific, technical aspects of this issue) asserts an average value of 330 Ci/AFR-yr of radon as being emitted from the existing inactive piles. He claims, therefore, that the Magno estimates "...do not represent conservative upper bounds..." Dr. Pohl's estimate is based on his analysis of data on inactive tailings piles presented in an EPA report (EPA-520/1-76-011, "Potential Radiological Impact of Airborne Releases and Direct Gamma Radiation to Individuals Living Near Inactive Uranium Mill Tailings Piles"). In that report the average depth of the tailings at the inactive sites is estimated to be 4.8 meters, the average unstabilized pile area is given as 35 acres, and the associated radon release is estimated to be 2900 Ci/yr. From these and other data, Dr. Pohl estimates the release of 330 Ci/AFR-yr from the average inactive unstabilized tailings pile.

For comparison, Magno's affidavit includes an estimate of 110 Ci/AFR-yr from his composite model tailings pile, which has an effective average depth of 38 feet (11.6 meters), if it is completely dry and devoid of cover materials. Since releases per AFR are inversely proportional to average tailings depth, it is readily apparent that this single factor accounts for most of the discrepancy. Based on an effective depth of 11.6 meters, the value used by Magno, Dr. Pohl's estimate would be reduced to approximately 137 Ci/AFR-yr, which is still 24 percent greater than the Magno estimate. The residual discrepancy is attributable primarily to differences in the specific flux coefficients utilized. The EPA report utilizes an annual average effective specific flux coefficient of  $1.29 \text{ pCi/m}^2\text{-s}$  per  $\text{pCi/g}$  of Ra-226 in the tailings, based on a maximum of 1.6

pCi/m<sup>2</sup>-s per pCi/g of Ra-226 and reduction factors of 0.85 and 0.95 to account for the emission retarding effects of normal precipitation and the finite thickness of the tailings deposits, respectively. Magno's analysis used a diffusion coefficient for dry tailings which equates to the specific flux factor of 1.07 pCi/m<sup>2</sup>-s per pCi/g of Ra-226, about 21 percent lower than the effective value of 1.29 used by EPA.

Thus, differences between Dr. Pohl's estimate of 330 Ci/AFR-yr and the Magno estimate of 110 Ci/AFR-yr are explainable on the basis of differences in the values of average pile depth and effective specific flux coefficient.

The staff value of 11.6 meters for ultimate average tailings depth compares well with the results of a staff survey of 18 active sites which yielded an average value of between 12 and 13 meters. In fact, the Magno value appears to be slightly conservative. Furthermore, Dr. Pohl's reference to use of a 6 meters effective pile thickness in the GEIS in support of his argument is very misleading. It ignores statements in the document (such as in the Appendix S discussion of parameter variability) which indicate that average, effective depth is likely in the 12-13 m range.

Also, the Magno value of 1.07 pCi/m<sup>2</sup>-s per pCi/g of Ra-226 in tailings for specific flux is considered to be conservatively realistic. The technical basis for this value is somewhat stronger than the technical basis for the EPA value, which is based on a single reference to a paper by Schiager. The Magno value has consistently been supported by ongoing

research activities sponsored by the NRC<sup>5</sup> and agrees well with measurements of natural radon exhalation measurements as discussed in Appendix O of the GEIS. It should be pointed out that Dr. Pohl's estimate is based on the EPA estimates, which derive from calculational models for releases. The EPA release estimates are, therefore, not the "measured emissions at actual mills" promised by intervenors in alleged deficiency No. 10.

2. Appeal Board Statement:

"And the claim that the piles will be covered or stabilized, and can be maintained in that fashion, has not been sufficiently well established. In this respect, the de-stabilizing effects of erosion, tails migration, and the sheer volume of the pile remain to be fully considered." (Deficiencies #13,<sup>6</sup> #14<sup>7</sup> and #21<sup>8</sup>; see also the Peach Bottom-Three Mile Island intervenors' Answer, pp. 7-8.<sup>9</sup>)

<sup>5</sup>"Characterization of Uranium Tailings Cover Materials for Radon Flux Reduction", Ford, Bacon and Davis Utah, Inc., NUREG/CR-1081 January 1980.

<sup>6</sup>This alleged deficiency reads as follows: "Mr. Kerr for the Staff testified the licensing restrictions for mills imposes a requirement on mill operators that tailing be stabilized so the radon emissions are no greater than 2X background. However, the record contains no information concerning what will be necessary to accomplish the desired objective. Untill (sic) evidence is obtained which indicated (sic) precisely what must be done to reduce tailings emissions to 2X background (sic); it is not possible to conclude that as a practical matter the Commission's objective is attainable. In addition, Mr. Kerr did not indicate where the background is to be measured. Is the background baseline a national average, or an average in the vicinity of the mill?"

<sup>7</sup>This alleged deficiency reads as follows: "In computing the long range emissions from mill tailings, the Staff assumes gradual deterioration of the vegetative cover. However, no consideration is given to the effect of spatial diffusion of the tailings piles which is likely to follow upon erosion (sic) or (sic) the cover. As the surface area of the piles increases, the radon released also increases. Evidence should be obtained indicating the release rate of piles as their surface area increases."

<sup>8</sup>This alleged deficiency reads as follows: "Mill tailings will constitute a massive amount of material. EA and NT are prepared to submit testimony that with respect to lesser amounts of radioactive materials the experience of the federal government has been that radioactive materials migrate to a much greater extent than originally anticipated and that there is every reason to believe this problem will be worse with the larger volume represented by mill tailings."

<sup>9</sup>[See next page]

<sup>9</sup>The following is the passage referred to by the Appeal Board of Peach Bottom-Three Mile Island intervenors' Answer (from pp. 7-8) addressing the Licensees' Joint Motion for Summary Disposition of alleged deficiencies Nos. 13, 14, 16 and 21: "Regarding deficiency number 16, the Congressional determination that adequate stabilization of abandoned mill tailings piles is necessary does not amount to a showing that permanent stabilization of these piles is possible or likely. Since adequate long-term mill tailings stabilization techniques have not been tested, developed, or even suggested, it would be arbitrary, capricious, unreasonable, and arrogant to assume automatically, merely upon a showing of Congressional recognition that the problem is sufficiently pronounced to warrant legislation, that the problem will somehow be solved. One cannot assume that the laws of the land will be implemented and enforced, particularly where implementation and enforcement may prove impossible. Furthermore, no such laws require permanent reclamation of the abandoned underground and open pit uranium ore mines.

Concerning Deficiency number 21, we note that there may be a trade-off between air pollution problems (radon emissions) and water pollution problems (radium and radon dissolved in ground waters) as a result of any future efforts to stabilize the abandoned mill tailings piles. Furthermore, it is misleading to suggest that the Staff has concluded that "the stabilization of mill tailings piles will reduce radon emissions 100-fold" (Joint Applicants' Brief at 8). The Staff at most can be said to have stated that the short-term emissions of radon from the piles might be reduced if enough dirt is placed on the piles. But will this be done no matter how much dirt it takes? Are the Joint Applicants volunteering to pay the enormous costs of such an enterprise? What will happen a few decades later when the dirt cover will have eroded away and the Staff still will not have developed a permanent solution, if any is to be found? What are the contingency plans if whatever "pussycat" method arrived at by the NRC Staff fails?

The conclusions drawn (Statement, para 41-43) regarding the long-term stability of the mill tailings piles constitute unsupported hand waving. The setting of performance standards is a futile exercise if there is no enforcement and the record of the NRC with regard to enforcing even its own regulations is pathetic. There is no assurance whatsoever in either the TMI-2 or Perkins records to state conclusively that the stabilized piles will persist. In fact, the reclamation "plan" (sic) are vague (Perkins tr 2401). Reliance was placed on some "Universal Soil Loss Equation" (tr 2402-3) which treated parameters in an averaged way (tr 2403), and was not based on any measurements in that area where the tailings are located (tr 2403-4). In addition, Staff Witness Gotchy acknowledged that "the Commission has no position on long-term stabilization of tailings piles." (tr 2405). In fact, the Staff does not take into account radon release rates over long periods of time, as asserted (Statement, 43). Instead, the Staff assumes the stabilization efforts will fail in time, (sic) periods short compared to the half-life of thorium-230 (See Gotchy Affidavit, after Perkins tr. 2369, page 4), and there is no reason to believe that reclamation will persist even for such short periods.

Response:

The existing program for regulation of mills and mill tailings, as described in Section I of this testimony, provides a firm basis upon which to state that tailings will, in fact, be stabilized.

With regard to erosion and long-term stability, as described in Section I, the staff is imposing stringent siting and design requirements for tailings disposal to assure long-term stability under natural weathering forces. Examples of tailings disposal programs meeting these requirements were described. As was stated, it is not possible to predict specific long-term scenarios; however, the conclusion is that prior staff testimony by Magno is reasonable and conservative in light of staff regulatory requirements.

As was demonstrated in Section I, the problems of managing and stabilizing mill tailings piles involve conventional earthmoving and civil engineering operations. As stated, disposal of mill tailings in a manner meeting staff licensing requirements is certainly feasible from cost and engineering points of view. Costs are a small percentage of mill product price. (See GEIS Section 12.3.3). NRC licensed mill operators, who have extensive experience in similar operations of even larger scale through their mining activities, have committed to plans of disposal meeting the requirements.

<sup>9</sup>(continued) No genuine permanent solution which will protect the public from radon emissions has been tested, developed, or even suggested. This is true for radon emissions from the abandoned mill tailings piles, for radon emissions from open pit uranium ore mines, and for radon emissions from underground uranium ore mines."



3. Appeal Board Statement:

"Nor has there yet been demonstrated the requisite assurance that regulatory control of mill tailings can be maintained for an appropriate length of time." (Deficiencies #13<sup>10</sup> and #16:<sup>11</sup> see also Peach Bottom-Three Mile Island intervenors' Answer, p. 7.<sup>12</sup>)

Response:

Section I of this testimony describes the approach being taken to account for the very long-lived nature of the tailings hazard. The primary means of isolation is provided by physical barriers which do not require ongoing active institutional control and maintenance. Tailings disposal siting and design criteria are being implemented to assure that this is achieved.

As a supplemental control, as described in Section I, arrangements for ongoing government ownership and monitoring of sites have been established. Also as described above, regulatory control over tailings is firm and will exist long enough to assure that tailings are disposed of properly. As I have mentioned, the period of time over which tailings will remain hazardous far exceeds the period of time any institution can be expected to exist. It is for this reason that isolation of tailings primarily by

<sup>10</sup>See footnote 6.

<sup>11</sup>This alleged deficiency reads as follows: "Staff testimony indicates that in agreement states mill tailings will be adequately isolated and stabilized. However, a notice on page 17 of V.143 #81 of the Federal Register (April 26, 1978) captioned Assessment of Environmental Impact of Uranium Mills in Agreement States, suggests concern on the part of the NRC as to the environmental review procedure used in agreement states and the capability of such states to insure the isolation and stabilization of tailings."

<sup>12</sup>See footnote 9.

physical barriers which do not require ongoing active maintenance is required.

As described in Section I, the current uranium mill regulatory program established by UMTRCA assures that technical control of tailings in Agreement States will be the same as in non-Agreement States.

4. Appeal Board Statement:

"And the effect of the guidelines under which such control is now exercised is not clear. For one thing, the guideline for stabilized piles calls for radon releases to be no more than twice background radon emissions in the surrounding environs. This guideline is formulated in terms of curies of radon released per unit area. Thus, the allowable release from a stabilized tails pile depends upon the area of that pile (as well as on the rate of radon emission from the surrounding area). Because the volume of the tails pile left from milling one "annual fuel requirement" (AFR) would depend on the grade of ore being mined, (Deficiency 17)<sup>13</sup> the area of such a pile is likely to be similarly dependent: Under the guideline, this, in turn, would affect the amount of radon allowed to be released from the pile. But the guideline does not take account of this effect, i.e., the effect that ore grade would have on allowable radon emission. This omission would be particularly pronounced if the fractional uranium recovery from ore diminishes as the ore grade decreases. And, in any event, there is no indication that at the level involved compliance with the guideline value for radon emission rate could be verified by direct measurement. (Deficiencies 13 and 16)<sup>14</sup>"

<sup>13</sup>This alleged deficiency reads: "The uranium industry is already turning to lower and lower grades of ore. This means higher volumes of tailings than assumed by Perkins. Although the number of potential curies may remain the same, larger piles will be more expensive and difficult (sic) to isolate and stabilize. EA and NT are prepared to present testimony on this point."

<sup>14</sup>See footnotes 6 and 11.

Response:

In Section I, the requirements of proposed formal regulations are reviewed and it is shown that their effect would be to reduce slightly the estimates of ongoing releases made by Magno based on staff interim tailings management criteria. Also, application of these criteria, (including their relation to background radon flux) and verification of compliance with the criteria was described; based on this previous discussion, it is concluded that prior staff testimony in the Perkins proceeding adequately estimated radon release.

There are two aspects of the question raised concerning possible reduction in ore grade and recovery efficiency. The first aspect of the question is: are the Magno estimates based upon an assumed 0.1% average ore grade accurate? The second aspect is: if there is a lowering of ore grades from that assumed in Magno's estimate and an associated increase in tailings volumes, will the problem of tailings disposal be manageable?

Are the Magno Estimates Accurate?

As noted in the beginning of this testimony, the estimates of radon releases are dependent upon a number of variable factors. The staff attempted in its testimony to select typical or average values for these factors. In answering this question about ore grade and recovery efficiency it is necessary to review the effect that incorporating current best estimates of

other important factors has on radon release estimates. The following equation, which determines post-reclamation radon releases per AFR, shows the relationship among these factors:

$$Q = \frac{ABR}{GPLU} (3.156 \times 10^3) \quad (1)$$

where:

A = total impoundment area, ha; (this can be related to a given volume of tailings by simply dividing volume by the effective thickness of a tailings impoundment);

B = Mt  $U_3O_8$  in yellowcake form required per AFR;

G = average ore grade, percent  $U_3O_8$ ;

L = operating lifetime of mill, yrs;

P = mill ore processing rate, MT/yr;

Q = radon release rate after reclamation, Ci/AFR-yr;

R = allowable surface radon flux from tails, pCi/m<sup>2</sup>-sec;

U = uranium recovery efficiency, percent; and

$3.156 \times 10^3$  = the necessary constant to account for units.

As illustrated by Equation 1, the resulting allowable release rate per AFR is inversely proportional to the ore grade and the uranium recovery efficiency, as well as the ore processing rate and the operational lifetime of the mill.

Based on the following values used by Magno, the resultant allowable release, Q, is calculated to be 0.92 Ci/AFR-yr:

Values Used in Magno Analysis

A = 56.6 ha (140 acres)	P = $5.12 \times 10^5$ MT/yr
B = 245 MT $U_3O_8$ /AFR	R = 2.5 pCi/m <sup>2</sup> -sec
G = 0.10%	U = 90%
L = 26 yrs.	

Magno expressed this result as 1-10 Ci/AFR-yr to "take into account uncertainty about the integrity of the stabilized tailings area over long periods of time."

The average ore grade most appropriate for use may be closer to about 0.07%  $U_3O_8$  rather than the Magno value of 0.10%. The value of 0.07% derives from data presented in a U. S. DOE report [GJO-100(78), "Statistical Data of the Uranium Industry", Grand Junction Office, January 1978], and represents the estimated average grade of all known uranium reserves recoverable at \$50 per pound or less. According to one recent estimate, the present level of known \$50 per pound reserves is sufficient to sustain the U.S. nuclear industry through about the year 2000, or, for about the next twenty years. However, based on the use of new equipment and more advanced technology, the uranium recovery rate would be expected to remain at about 90%, with any potential downward change being insignificant.

Therefore, based on a more conservative estimate of average ore grade of 0.07%  $U_3O_8$ , the Magno value of 0.92 Ci/AFR-yr would be increased only marginally, to about 1.3 Ci/AFR-yr. This upward change is counteracted by the influences of recent events on two other involved parameters. The DOE enrichment tails assay has recently been reduced to 0.2wt% U-235, markedly decreasing the amount of natural uranium required per AFR (the staff would now estimate approximately 185 MT  $U_3O_8$  in yellowcake form required per AFR, as opposed to 245 Mt  $U_3O_8$  per AFR as assumed by Magno). Also, as discussed previously, the staff has formally proposed a regulation limiting post-reclamation radon flux to 2.0 pCi/m<sup>2</sup>-s, which is 20% lower than the value of 2.5 pCi/m<sup>2</sup>-s assumed by Magno.

Upon consideration of all of these influences, the previous Magno estimate of 1-10 Ci/AFR-yr remains reasonable and conservative.

#### Will the Problem of Tailings Disposal be Manageable?

In Section I of this testimony, it was shown that tailings disposal methods have been devised for real sites. Furthermore, firm commitments have been made by all mill operators under NRC license to complete programs of tailings disposal. The differences in the volume of tailings which goes along with potential ore grade changes is not significant in terms of the degree of difficulty that exists in successfully completing these programs. There is much more variability in the size of tailings piles that in actuality will be reclaimed and stabilized at various sites than there is difference between the average tailings pile volumes that would result from 0.1% and 0.07% average

ore grade estimates. The average ore grade to be processed at the mill project depicted in Figure 3 is about 0.05%. The size of pile is also much more strongly influenced by other factors such as size of ore bodies being mined in the area, number of mines feeding the mill, the amount of competition existing between uranium extraction companies (which influences whether they form joint ventures to process ore or build separate mills), etc. Currently active mills vary in capacity from 400 to over 6000 Mt/day with a similar degree of variation in ultimate tailings impoundment size expected.

Furthermore, the mining of ore feeding the mill may involve moving 30 or more times the amount of material handled in disposing of the tailings. (See "Prediction of the Net Radon Emission From a Model Open Pit Uranium Mine", NUREG/CR-0628, September, 1979, Table II.) As indicated in Section I, tailings disposal will be carried out by conventional, straight forward earthmoving operations. The effect of changes in average tailings volume, which might occur as a result of possible changes in average ore grade and recovery efficiency, would have on managing the job of tailings disposal is insignificant.

#### WATER PATHWAYS

1. Appeal Board Statement:

"There does not appear to have been a complete assessment of potential exposure to radon reaching humans through water pathways. In particular, it might be possible for groundwater to enter abandoned mines or mill tailings piles, to absorb radon or its progenitors and then

to transport them to points which could ultimately lead to their inhalation or ingestion by humans." (Deficiencies #7<sup>15</sup> and #18.<sup>16</sup>)

Response:

It is unlikely that there will be any significant radon-222 released indirectly via the water pathway either as a result of natural migration of nuclides or from intrusion scenarios which have been suggested.

As discussed in Section I, steps are being taken to reduce or eliminate seepage from tailings. Tailings are in most cases being isolated from aquifers. Some seepage will occur, but as discussed above, the nuclides involved tend to sorb or ion-exchange and not migrate to an appreciable extent. If contaminants enter an aquifer, they can be released only at an outcrop of the aquifer or where a well is dug. The factors which control the rate of movement and possibility for release to the atmosphere are so variable that it is not very illuminating to postulate generic scenarios.

<sup>15</sup>This alleged deficiency reads: "Perkins considers only the atmospheric pathways for radon emissions from mining. However, it is possible for there to be releases to streams or the ground water. Improperly sealed or unsealed mine test holes could fill with rain or ground water. As (sic) EPA report, Water Quality Impact of Uranium Mining Milling Activities in the Grants Mineral Belt New Mexico, EPA 906/9-75-001 Sept. 1975, found radioactive contamination of drinking water in mining facilities and ground water contamination exceeding EPA limits for certain chemicals by 740%. This report demonstrates the existence of hydrologic pathways for radon contamination."

<sup>16</sup>This alleged deficiency reads: "The NRC is considering underground burial of mill tailings. Although this method of disposal seems preferable from the point of view of preventing erosion (sic) by wind and water of above surface piles, buried tailings are more likely to be leached by groundwater. In fact, one could imagine a below grade quantity (sic) of mill tailings might represent a preferred (sic) location for collecting groundwater. Hence, people drilling for water wells may be attracted [to] the burial sites, and thus be exposed to large radiation exposures through radium 226. This exposure pathway ought to receive careful attention before a decision is made to dispose of mill tailings in this way."



However, some perspective on the matter can be gained by considering the fact that most ore bodies are located in aquifers. Therefore, as far as natural migration of contamination is concerned, the situation following mining and milling is comparable to that which exists before any uranium recovery. The water pathway will, in fact, be less significant for the case where an ore body is mined than it will be for the case where it is not mined because of the steps which are being taken under mill licensing requirements to isolate tailings contaminants [including residual radioactivity (both progenitors and daughters of radon-222) from the processed ore] from groundwater.

If it is postulated that groundwater rises into the tailings or if the tailings remain wet because of incomplete evaporation or as a result of precipitation, the previous Perkins proceeding staff estimates of direct airborne radon-222 releases (Magno testimony) would be reduced significantly. Because moisture in soils or in tailings has a major retarding effect on the diffusion of radon to the surface for release to the atmosphere, and because the staff estimates were based upon a dry tailings pile, the reduction in releases from the airborne pathway would far outweigh any indirect release that would occur via the water pathway that might be postulated.

### III CONCLUSION

Upon review of the alleged deficiencies, I conclude they are without foundation for reasons stated in Sections I and II of this testimony. The staff testimony

presented in the Perkins proceeding constitutes a reasonably accurate and conservative statement of the releases of radon-222 from uranium milling and associated tailings disposal operations both during and after the period of active milling.

TERA

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matters of:

PHILADELPHIA ELECTRIC COMPANY ET AL.

(Peach Bottom Atomic Power Station,  
Units 2 and 3)

METROPOLITAN EDISON COMPANY ET AL.

(Three Mile Island Nuclear Station,  
Unit No. 2)

PUBLIC SERVICE ELECTRIC AND GAS CO.

(Hope Creek Generating Station,  
Units 1 and 2)

ROCHESTER GAS AND ELECTRIC CORPORATION  
ET AL.

(Sterling Power Project, Nuclear  
Unit 1)

)  
} Docket Nos. 50-277  
} 50-278

)  
} Docket No. 50-320

)  
} Docket Nos. 50-354  
} 50-355

)  
} Docket No. STN 50-485

CERTIFICATE OF SERVICE

I hereby certify that copies of the following NRC Staff's Proposed Testimony in the captioned proceedings have been served on the persons listed on the attached service list this 18th day of January, 1980: "NRC STAFF TESTIMONY OF HOMER LOWENBERG (ALLEGED DEFICIENCY 26)", "NRC STAFF TESTIMONY OF HUBERT J. MILLER (AND ATTACHMENTS) (ALLEGED DEFICIENCIES 7, 10, 13, 14, 16, 17, 18, and 21)", and "NRC STAFF TESTIMONY OF RALPH M. WILDE (ALLEGED DEFICIENCIES 3, 4 AND 5). Those persons whose addresses are at the U.S. Nuclear Regulatory Commission have been served by the NRC internal mail system and others have been served by deposit in the U.S. mail. One copy has been served on each person even though his or her name appears on more than one service list. In addition to copies served on the Atomic Safety and Licensing Board and Atomic Safety and Licensing Appeal Board members identified on the service list, 5 copies have been provided to the Atomic Safety and Licensing Board Panel, and 20 copies have been provided to the Atomic Safety and Licensing Appeal Board Panel.

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**PART IV. URANIUM MILL TAILINGS  
RADIATION CONTROL ACT OF 1978, AS AMENDED**

**PUBLIC LAW 95-604 [H.R. 13650]**

[92 STAT. 3021]

AN ACT

To authorize the Secretary of Energy to enter into cooperative agreements with certain States respecting residual radioactive material at existing sites, to provide for the regulation of uranium mill tailings under the Atomic Energy Act of 1954, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

Uranium Mill  
Tailings  
Radiation  
Control  
Act of 1978.  
42 U.S.C. 7901  
note.

SHORT TITLE AND TABLE OF CONTENTS

SECTION 1. This Act may be cited as the "Uranium Mill Tailings Radiation Control Act of 1978".

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#### FINDINGS AND PURPOSES

42 U.S.C. 7901. SEC. 2. (a) The Congress finds that uranium mill tailings located at active and inactive mill operations may pose a potential and significant radiation health hazard to the public, and that the protection of the public health, safety, and welfare and the regulation of interstate commerce require that every reasonable effort be made to provide for the stabilization, disposal, and control in a safe and environmentally sound manner of such tailings in order to prevent or minimize radon diffusion into the environment and to prevent or minimize other environmental hazards from such tailings.

(b) The purposes of this Act are to provide—

(1) in cooperation with the interested States, Indian tribes, and the persons who own or control inactive mill tailings sites, a program of assessment and remedial action at such sites, including, where appropriate, the reprocessing of tailings to extract residual uranium and other mineral values where practicable, in order to stabilize and control such tailings in a safe and environmentally sound manner and to minimize or eliminate radiation health hazards to the public, and

(2) a program to regulate mill tailings during uranium or thorium ore processing at active mill operations and after termination of such operations in order to stabilize and control such tailings in a safe and environmentally sound manner and to minimize or eliminate radiation health hazards to the public.

### TITLE I—REMEDIAL ACTION PROGRAM

#### DEFINITIONS

- 42 U.S.C. 7911. SEC. 101. For purposes of this title—  
 (1) The term "Secretary" means the Secretary of Energy.  
 (2) The term "Commission" means the Nuclear Regulatory Commission.



(3) The term "Administrator" means the Administrator of the Environmental Protection Agency.

(4) The term "Indian tribe" means any tribe, band, clan, group, pueblo, or community of Indians recognized as eligible for services provided by the Secretary of the Interior to Indians.

(5) The term "person" means any individual, association, partnership, corporation, firm, joint venture, trust, government entity, and any other entity, except that such term does not include any Indian or Indian tribe.

(6) The term "processing site" means—

(A) any site, including the mill, containing residual radioactive materials at which all or substantially all of the uranium was produced for sale to any Federal agency prior to January 1, 1971 under a contract with any Federal agency, except in the case of a site at or near Slick Rock, Colorado, unless—

(i) such site was owned or controlled as of January 1, 1978, or is thereafter owned or controlled, by any Federal agency, or

(ii) a license (issued by the Commission or its predecessor agency under the Atomic Energy Act of 1954 or by a State as permitted under section 274 of such Act) for the production at such site of any uranium or thorium product derived from ores is in effect on January 1, 1978, or is issued or renewed after such date; and

(B) any other real property or improvement thereon which—

(i) is in the vicinity of such site, and

(ii) is determined by the Secretary, in consultation with the Commission, to be contaminated with residual radioactive materials derived from such site.

Any ownership or control of an area by a Federal agency which is acquired pursuant to a cooperative agreement under this title shall not be treated as ownership or control by such agency for purposes of subparagraph (A) (i). A license for the production of any uranium product from residual radioactive materials shall not be treated as a license for production from ores within the meaning of subparagraph (A) (ii) if such production is in accordance with section 108(b).

(7) The term "residual radioactive material" means—

(A) waste (which the Secretary determines to be radioactive) in the form of tailings resulting from the processing of ores for the extrac-

42 U.S.C. 2011  
note.  
42 U.S.C. 2021.

tion of uranium and other valuable constituents of the ores; and

(B) other waste (which the Secretary determines to be radioactive) at a processing site which relate to such processing, including any residual stock of unprocessed ores or low-grade materials.

(8) The term "tailings" means the remaining portion of a metal-bearing ore after some or all of such metal, such as uranium, has been extracted.

(9) The term "Federal agency" includes any executive agency as defined in section 105 of title 5 of the United States Code.

(10) The term "United States" means the 48 contiguous States and Alaska, Hawaii, Puerto Rico, the District of Columbia, and the territories and possessions of the United States.

#### DESIGNATION OF PROCESSING SITES

42 U.S.C. 7312. SEC. 102. (a) (1) As soon as practicable, but no later than one year after enactment of this Act, the Secretary shall designate processing sites at or near the following locations:

Salt Lake City, Utah  
 Green River, Utah  
 Mexican Hat, Utah  
 Durango, Colorado  
 Grand Junction, Colorado  
 Rifle, Colorado (two sites)  
 Gunnison, Colorado  
 Naturita, Colorado  
 Maybell, Colorado  
 Slick Rock, Colorado (two sites)  
 Shiprock, New Mexico  
 Ambrosia Lake, New Mexico  
 Riverton, Wyoming  
 Converse County, Wyoming  
 Lakeview, Oregon  
 Falls City, Texas  
 Tuba City, Arizona  
 Monument Valley, Arizona  
 Lowman, Idaho  
 Canonsburg, Pennsylvania

Remedial  
 action.

Subject to the provisions of this title, the Secretary shall complete remedial action at the above listed sites before his authority terminates under this title. The Secretary shall within one year of the date of enactment of this Act also designate all other processing sites within the United States which he determines requires remedial action to carry out the purposes of this title. In making such designation, the Secretary shall consult with the

Administrator, the Commission, and the affected States, and in the case of Indian lands, the appropriate Indian tribe and the Secretary of the Interior.

(2) As part of his designation under this subsection, the Secretary, in consultation with the Commission, shall determine the boundaries of each such site.

(3) No site or structure with respect to which remedial action is authorized under Public Law 92-314 in Grand Junction, Colorado, may be designated by the Secretary as a processing site under this section.

86 Stat. 222.

(b) Within one year from the date of the enactment of this Act, the Secretary shall assess the potential health hazard to the public from the residual radioactive materials at designated processing sites. Based upon such assessment, the Secretary shall, within such one year period, establish priorities for carrying out remedial action at each such site. In establishing such priorities, the Secretary shall rely primarily on the advice of the Administrator.

Health hazard assessment.

(c) Within thirty days after making designations of processing sites and establishing the priorities for such sites under this section, the Secretary shall notify the Governor of each affected State, and, where appropriate, the Indian tribes and the Secretary of the Interior.

Notification.

(d) The designations made, and priorities established, by the Secretary under this section shall be final and not be subject to judicial review.

(e) (1) The designation of processing sites within one year after enactment under this section shall include, to the maximum extent practicable, the areas referred to in section 101(6)(B).

(2) Notwithstanding the one year limitation contained in this section, the Secretary may, after such one year period, include any areas described in section 101(6)(B) as part of a processing site designated under this section if he determines such inclusion to be appropriate to carry out the purposes of this title.

#### STATE COOPERATIVE AGREEMENTS

SEC. 103. (a) After notifying a State of the designation referred to in section 102 of this title, the Secretary subject to section 113, is authorized to enter into cooperative agreements with such State to perform remedial actions at each designated processing site in such State (other than a site located on Indian lands referred to in section 105). The Secretary shall, to the greatest extent practicable, enter into such agreements and carry out such remedial actions in accordance with the priorities established by him under section 102. The Secretary shall commence preparations for cooperative agreements with respect to each designated processing site as

42 U.S.C. 7913.

promptly as practicable following the designation of each site.

Terms and  
Conditions.

(b) Each cooperative agreement under this section shall contain such terms and conditions as the Secretary deems appropriate and consistent with the purposes of this Act, including, but not limited to, a limitation on the use of Federal assistance to those costs which are directly required to complete the remedial action selected pursuant to section 108.

Written  
consent.

(c) (1) Except where the State is required to acquire the processing site as provided in subsection (a) of section 104, each cooperative agreement with a State under section 103 shall provide that the State shall obtain, in a form prescribed by the Secretary, written consent from any person holding any record interest in the designated processing site for the Secretary or any person designated by him to perform remedial action at such site.

Waiver.

(2) Such written consent shall include a waiver by each such person on behalf of himself, his heirs, successors, and assigns—

(A) releasing the United States of any liability or claim thereof by such person, his heirs, successors, and assigns concerning such remedial action, and

(B) holding the United States harmless against any claim by such person on behalf of himself, his heirs, successors, or assigns arising out of the performance of any remedial action.

(d) Each cooperative agreement under this section shall require the State to assure that the Secretary, the Commission, and the Administrator and their authorized representatives have a permanent right of entry at any time to inspect the processing site and the site provided pursuant to section 104(b)(1) in furtherance of the provisions of this title and to carry out such agreement and enforce this Act and any rules prescribed under this Act. Such right of entry under this section or section 106 into an area described in section 101(6)(B) shall terminate on completion of the remedial action, as determined by the Secretary.

(e) Each agreement under this section shall take effect only upon the concurrence of the Commission with the terms and conditions thereof.

(f) The Secretary may, in any cooperative agreement entered into under this section or section 105, provide for reimbursement of the actual costs, as determined by the Secretary, of any remedial action performed with respect to so much of a designated processing site as is described in section 101(6)(B). Such reimbursement shall be made only to a property owner of record at the time such remedial action was undertaken and only with respect to costs incurred by such property owner. No such reimbursement may be made unless—

(1) such remedial action was completed prior to enactment of this Act, and unless the application for such reimbursement was filed by such owner within one year after an agreement under this section or section 105 is approved by the Secretary and the Commission, and

(2) the Secretary is satisfied that such action adequately achieves the purposes of this Act with respect to the site concerned and is consistent with the standards established by the Administrator pursuant to section 275(a) of the Atomic Energy Act of 1954. *Post*, p. 3029.

#### ACQUISITION, AND DISPOSITION OF LANDS AND MATERIALS

SEC. 104. (a) Each cooperative agreement under section 103 shall require the State, where determined appropriate by the Secretary with the concurrence of the Commission, to acquire any designated processing site, including where appropriate any interest therein. In determining whether to require the State to acquire a designated processing site or interest therein, consideration shall be given to the prevention of windfall profits. 42 U.S.C. 7914.

(b) (1) If the Secretary with the concurrence of the Commission determines that removal of residual radioactive material from a processing site is appropriate, the cooperative agreement shall provide that the State shall acquire land (including, where appropriate, any interest therein) to be used as a site for the permanent disposition and stabilization of such residual radioactive materials in a safe and environmentally sound manner.

Residual  
radioactive  
material,  
removal.

(2) Acquisition by the State shall not be required under this subsection if a site located on land controlled by the Secretary or made available by the Secretary of the Interior pursuant to section 106(a)(2) is designated by the Secretary, with the concurrence of the Commission, of such disposition and stabilization.

(c) No State shall be required under subsection (a) or (b) to acquire any real property or improvement outside the boundaries of—

(1) that portion of the processing site which is described in section 101(6)(A), and

(2) the site used for disposition of the residual radioactive materials.

(d) In the case of each processing site designated under this title other than a site designated on Indian land, the State shall take such action as may be necessary, and pursuant to regulations of the Secretary under this subsection, to assure that any person who purchases such a processing site after the removal of radioactive materials from such site shall be notified in an appropriate manner prior to such purchase, of the nature and extent of residual radioactive materials removed from the site, including

Notification.

Rules and regulations.

notice of the date when such action took place, and the condition of such site after such action. If the State is the owner of such site, the State shall so notify any prospective purchaser before entering into a contract, option, or other arrangement to sell or otherwise dispose of such site. The Secretary shall issue appropriate rules and regulations to require notice in the local land records of the residual radioactive materials which were located at any processing site and notice of the nature and extent of residual radioactive materials removed from the site, including notice of the date when such action took place.

(e) (1) The terms and conditions of any cooperative agreement with a State under section 103 shall provide that in the case of any lands or interests therein acquired by the State pursuant to subsection (a), the State, with the concurrence of the Secretary and the Commission, may—

(A) sell such lands and interests,

(B) permanently retain such land and interests in lands (or donate such lands and interests therein to another governmental entity within such State) for permanent use by such State or entity solely for park, recreational, or other public purposes, or

(C) transfer such lands and interests to the United States as provided in subsection (f).

No lands may be sold under subparagraph (A) without the consent of the Secretary and the Commission. No site may be sold under subparagraph (A) or retained under subparagraph (B) if such site is used for the disposition of residual radioactive materials.

(2) Before offering for sale any lands and interests therein which comprise a processing site, the State shall offer to sell such lands and interests at their fair market value to the person from whom the State acquired them.

(f) (1) Each agreement under section 103 shall provide that title to—

(A) the residual radioactive materials subject to the agreement, and

(B) any lands and interests therein which have been acquired by the State, under subsection (a) or (b), for the disposition of such materials,

shall be transferred by the State to the Secretary when the Secretary (with the concurrence of the Commission) determines that remedial action is completed in accordance with the requirements imposed pursuant to this title. No payment shall be made in connection with the transfer of such property from funds appropriated for purposes of this Act other than payments for any administrative and legal costs incurred in carrying out such transfer.

(2) Custody of any property transferred to the United States under this subsection shall be assumed by the Sec-

Secretary or such Federal agency as the President may designate. Notwithstanding any other provision of law, upon completion of the remedial action program authorized by this title, such property and minerals shall be maintained pursuant to a license issued by the Commission in such manner as will protect the public health, safety, and the environment. The Commission may, pursuant to such license or by rule or order, require the Secretary or other Federal agency having custody of such property and minerals to undertake such monitoring, maintenance, and emergency measures necessary to protect public health and safety and other actions as the Commission deems necessary to comply with the standards of section 275(a) of the Atomic Energy Act of 1954. The Secretary or such other Federal agency is authorized to carry out maintenance, monitoring and emergency measures under this subsection, but shall take no other action pursuant to such license, rule or order with respect to such property and minerals unless expressly authorized by Congress after the date of enactment of this Act. The United States shall not transfer title to property or interest therein acquired under this subsection to any person or State, except as provided in subsection (h).

*Post, p. 3039.*

(g) Each agreement under section 103 which permits any sale described in subsection (e) (1) (A) shall provide for the prompt reimbursement to the Secretary from the proceeds of such sale. Such reimbursement shall be in an amount equal to the lesser of—

(1) that portion of the fair market value of the lands or interests therein which bears the same ratio to such fair market value as the Federal share of the costs of acquisition by the State to such lands or interest therein bears to the total cost of such acquisition, or

(2) the total amount paid by the Secretary with respect to such acquisition.

The fair market value of such lands or interest shall be determined by the Secretary as of the date of the sale by the State. Any amounts received by the Secretary under this title shall be deposited in the Treasury of the United States as miscellaneous receipts.

Fair market value.

(h) No provision of any agreement under section 103 shall prohibit the Secretary of the Interior, with the concurrence of the Secretary of Energy and the Commission, from disposing of any subsurface mineral rights by sale or lease (in accordance with laws of the United States applicable to the sale, lease, or other disposal of such rights) which are associated with land on which residual radioactive materials are disposed and which are transferred to the United States as required under this section if the Secretary of the Interior takes such action as the Commission deems necessary pursuant to a

license issued by the Commission to assure that the residual radioactive materials will not be disturbed by reason of any activity carried on following such disposition. If any such materials are disturbed by any such activity, the Secretary of the Interior shall insure, prior to the disposition of the minerals, that such materials will be restored to a safe and environmentally sound condition as determined by the Commission, and that the costs of such restoration will be borne by the person acquiring such rights from the Secretary of the Interior or from his successor or assign.

#### INDIAN TRIBE COOPERATIVE AGREEMENTS

42 U.S.C. 7915.

SEC. 105. (a) After notifying the Indian tribe of the designation pursuant to section 102 of this title, the Secretary, in consultation with the Secretary of the Interior, is authorized to enter into a cooperative agreement, subject to section 113, with any Indian tribe to perform remedial action at a designated processing site located on land of such Indian tribe. The Secretary shall, to the greatest extent practicable, enter into such agreements and carry out such remedial actions in accordance with the priorities established by him under section 102. In performing any remedial action under this section and in carrying out any continued monitoring or maintenance respecting residual radioactive materials associated with any site subject to a cooperative agreement under this section, the Secretary shall make full use of any qualified members of Indian tribes resident in the vicinity of any such site. Each such agreement shall contain such terms and conditions as the Secretary deems appropriate and consistent with the purposes of this Act. Such terms and conditions shall require the following:

Terms and conditions.

(1) The Indian tribe and any person holding any interest in such land shall execute a waiver (A) releasing the United States of any liability or claim thereof by such tribe or person concerning such remedial action and (B) holding the United States harmless against any claim arising out of the performance of any such remedial action.

(2) The remedial action shall be selected and performed in accordance with section 108 by the Secretary or such person as he may designate.

(3) The Secretary, the Commission, and the Administrator and their authorized representatives shall have a permanent right of entry at any time to inspect such processing site in furtherance of the provisions of this title, to carry out such agreement, and to enforce any rules prescribed under this Act.

Each agreement under this section shall take effect only upon concurrence of the Commission with the terms and conditions thereof.



(b) When the Secretary with the concurrence of the Commission determines removal of residual radioactive materials from a processing site on lands described in subsection (a) to be appropriate, he shall provide, consistent with other applicable provisions of law, a site or sites for the permanent disposition and stabilization in a safe and environmentally sound manner of such residual radioactive materials. Such materials shall be transferred to the Secretary (without payment therefor by the Secretary) and permanently retained and maintained by the Secretary under the conditions established in a license issued by the Commission, subject to section 104(f) (2) and (h).

Transfer to  
Secretary of  
the Interior.

#### ACQUISITION OF LAND BY SECRETARY

SEC. 106. Where necessary or appropriate in order to consolidate in a safe and environmentally sound manner the location of residual radioactive materials which are removed from processing sites under cooperative agreements under this title, or where otherwise necessary for the permanent disposition and stabilization of such materials in such manner—

42 U.S.C. 7916.

(1) the Secretary may acquire land and interests in land for such purposes by purchase, donation, or under any other authority of law or

(2) the Secretary of the Interior may make available public lands administered by him for such purposes in accordance with other applicable provisions of law.

Prior to acquisition of land under paragraph (1) or (2) of this subsection in any State, the Secretary shall consult with the Governor of such State. No lands may be acquired under such paragraph (1) or (2) in any State in which there is no (1) processing site designated under this title or (2) active uranium mill operation, unless the Secretary has obtained the consent of the Governor of such State. No lands controlled by any Federal agency may be transferred to the Secretary to carry out the purposes of this Act without the concurrence of the chief administrative officer of such agency.

Consultation.

#### FINANCIAL ASSISTANCE

SEC. 107. (a) In the case of any designated processing site for which an agreement is executed with any State for remedial action at such site, the Secretary shall pay 90 per centum of the actual cost of such remedial action, including the actual costs of acquiring such site (and any interest therein) or any disposition site (and any interest therein) pursuant to section 103 of this title, and the State shall pay the remainder of such costs from non-

42 U.S.C. 7917.

Federal funds. The Secretary shall not pay the administrative costs incurred by any State to develop, prepare, and carry out any cooperative agreement executed with such State under this title, except the proportionate share of the administrative costs associated with the acquisition of lands and interests therein acquired by the State pursuant to this title.

(b) In the case of any designated processing site located on Indian lands, the Secretary shall pay the entire cost of such remedial action.

#### REMEDIAL ACTION

42 U.S.C. 7918. SEC. 108. (a) (1) The Secretary or such person as he may designate shall select and perform remedial actions at designated processing sites and disposal sites in accordance with the general standards prescribed by the Administrator pursuant to section 275 a. of the Atomic Energy Act of 1954. The State shall participate fully in the selection and performance of a remedial action for which it pays part of the cost. Such remedial action shall be selected and performed with the concurrence of the Commission and in consultation, as appropriate, with the Indian tribe and the Secretary of the Interior.

Post, p. 3039.

(2) The Secretary shall use technology in performing such remedial action as will insure compliance with the general standards promulgated by the Administrator under section 275 a. of the Atomic Energy Act of 1954 and will assure the safe and environmentally sound stabilization of residual radioactive materials, consistent with existing law. No such remedial action may be undertaken under this section before the promulgation by the Administrator of such standards.

Evaluation.

(b) Prior to undertaking any remedial action at a designated site pursuant to this title, the Secretary shall request expressions of interest from private parties regarding the remilling of the residual radioactive materials at the site and, upon receipt of any expression of interest, the Secretary shall evaluate among other things the mineral concentration of the residual radioactive materials at each designated processing site to determine whether, as a part of any remedial action program, recovery of such minerals is practicable. The Secretary, with the concurrence of the Commission, may permit the recovery of such minerals, under such terms and conditions as he may prescribe to carry out the purposes of this title. No such recovery shall be permitted unless such recovery is consistent with remedial action. Any person permitted by the Secretary to recover such mineral shall pay to the Secretary a share of the net profits derived from such recovery, as determined by the Secretary. Such share shall not exceed the total amount paid by the Sec-

retary for carrying out remedial action at such designated site. After payment of such share to the United States under this subsection, such person shall pay to the State in which the residual radioactive materials are located a share of the net profits derived from such recovery, as determined by the Secretary. The person recovering such minerals shall bear all costs of such recovery. Any person carrying out mineral recovery activities under this paragraph shall be required to obtain any necessary license under the Atomic Energy Act of 1954 or under State law as permitted under section 274 of such Act. 42 U.S.C. 2021.

#### RULES

SEC. 109. The Secretary may prescribe such rules consistent with the purposes of this Act as he deems appropriate pursuant to title V of the Department of Energy Organization Act. 42 U.S.C. 7919.

#### ENFORCEMENT

SEC. 110. (a) (1) Any person who violates any provision of this title or any cooperative agreement entered into pursuant to this title or any rule prescribed under this Act concerning any designated processing site, disposition site, or remedial action shall be subject to an assessment by the Secretary of a civil penalty of not more than \$1,000 per day per violation. Such assessment shall be made by order after notice and an opportunity for a public hearing, pursuant to section 554 of title 5, United States Code. 42 U.S.C. 7920.

Notice, hearing opportunity.

(2) Any person against whom a penalty is assessed under this section may, within sixty calendar days after the date of the order of the Secretary assessing such penalty, institute an action in the United States court of appeals for the appropriate judicial circuit for judicial review of such order in accordance with chapter 7 of title 5, United States Code. The court shall have jurisdiction to enter a judgment affirming, modifying, or setting aside in whole or in part, the order of the Secretary, or the court may remand the proceeding to the Secretary for such further action as the court may direct.

5 U.S.C. 500  
et seq.  
Jurisdiction.

(3) If any person fails to pay an assessment of a civil penalty after it has become a final and unappealable order, the Secretary shall institute an action to recover the amount of such penalty in any appropriate district court of the United States. In such action, the validity and appropriateness of such final assessment order or judgment shall not be subject to review. Section 402(d) of the Department of Energy Organization Act shall not apply with respect to the functions of the Secretary under this section. 42 U.S.C. 7172.

(4) No civil penalty may be assessed against the United States or any State or political subdivision of a State or any official or employee of the foregoing.

(5) Nothing in this section shall prevent the Secretary from enforcing any provision of this title or any cooperative agreement or any such rule by injunction or other equitable remedy.

42 U.S.C. 2011  
note.

(b) Subsection (a) shall not apply to any licensing requirement under the Atomic Energy Act of 1954. Such licensing requirements shall be enforced by the Commission as provided in such Act.

#### PUBLIC PARTICIPATION

42 U.S.C. 7021.

SEC. 111. In carrying out the provisions of this title, including the designation of processing sites, establishing priorities for such sites, the selection of remedial actions, and the execution of cooperative agreements, the Secretary, the Administrator, and the Commission shall encourage public participation and, where appropriate, the Secretary shall hold public hearings relative to such matters in the States where processing sites and disposal sites are located.

#### TERMINATION ; AUTHORIZATION

42 U.S.C. 7022.

SEC. 112. (a) The authority of the Secretary to perform remedial action under this title shall terminate on the date seven years after the date of promulgation by the Administrator of general standards applicable to such remedial action unless such termination date is specifically extended by an Act of Congress enacted after the date of enactment of this Act.

(b) The amounts authorized to be appropriated to carry out the purposes of this title by the Secretary, the Administrator, the Commission, and the Secretary of the Interior shall not exceed such amounts as are established in annual authorization Acts for fiscal year 1979 and each fiscal year thereafter applicable to the Department of Energy. Any sums appropriated for the purposes of this title shall be available until expended.

#### LIMITATION

42 U.S.C. 7023.

SEC. 113. The authority under this title to enter into contracts or other obligations requiring the United States to make outlays may be exercised only to the extent provided in advance in annual authorization and appropriation Acts.

#### REPORTS TO CONGRESS

42 U.S.C. 7024.

SEC. 114. (a) Beginning on January 1, 1980, and each year thereafter until January 1, 1986, the Secretary shall submit a report to the Congress with respect to the status of the actions required to be taken by the Secretary, the Commission, the Secretary of the Interior, the Adminis-

trator, and the States and Indian tribes under this Act and any amendments to other laws made by this Act. Each report shall—

- (1) include data on the actual and estimated costs of the program authorized by this title;
- (2) describe the extent of participation by the States and Indian tribes in this program;
- (3) evaluate the effectiveness of remedial actions, and describe any problems associated with the performance of such actions; and
- (4) contain such other information as may be appropriate.

Such report shall be prepared in consultation with the Commission, the Secretary of the Interior, and the Administrator and shall contain their separate views, comments, and recommendations, if any. The Commission shall submit to the Secretary and Congress such portion of the report under this subsection as relates to the authorities of the Commission under title II of this Act.

(b) Not later than July 1, 1979, the Secretary shall provide a report to the Congress which identifies all sites located on public or acquired lands of the United States containing residual radioactive materials and other radioactive waste (other than waste resulting from the production of electric energy) and specifies which Federal agency has jurisdiction over such sites. The report shall include the identity of property and other structures in the vicinity of such site that are contaminated or may be contaminated by such materials and the actions planned or taken to remove such materials. The report shall describe in what manner such sites are adequately stabilized and otherwise controlled to prevent radon diffusion from such sites into the environment and other environmental harm. If any site is not so stabilized or controlled, the report shall describe the remedial actions planned for such site and the time frame for performing such actions. In preparing the reports under this section, the Secretary shall avoid duplication of previous or ongoing studies and shall utilize all information available from other departments and agencies of the United States respecting the subject matter of such report. Such agencies shall cooperate with the Secretary in the preparation of such report and furnish such information as available to them and necessary for such report.

Cooperation.

(c) Not later than January 1, 1980, the Administrator, in consultation with the Commission, shall provide a report to the Congress which identifies the location and potential health, safety, and environmental hazards of uranium mine wastes together with recommendations, if any, for a program to eliminate these hazards.

(d) Copies of the reports required by this section to be submitted to the Congress shall be separately submitted to the Committees on Interior and Insular Affairs

and on Interstate and Foreign Commerce of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

(e) The Commission, in cooperation with the Secretary, shall ensure that any relevant information, other than trade secrets and other proprietary information otherwise exempted from mandatory disclosure under any other provision of law, obtained from the conduct of each of the remedial actions authorized by this title and the subsequent perpetual care of those residual radioactive materials is documented systematically, and made publicly available conveniently for use.

#### ACTIVE OPERATIONS; LIABILITY FOR REMEDIAL ACTION

42 U.S.C. 7925.

SEC. 115. (a) No amount may be expended under this title with respect to any site licensed by the Commission under the Atomic Energy Act of 1954 or by a State as permitted under section 274 of such Act at which production of any uranium product from ores (other than from residual radioactive materials) takes place.

42 U.S.C. 2011  
note.

42 U.S.C. 2021.  
Study.

(b) In the case of each processing site designated under this title, the Attorney General shall conduct a study to determine the identity and legal responsibility which any person (other than the United States, a State, or Indian tribe) who owned or operated or controlled (as determined by the Attorney General) such site before the date of the enactment of this Act may have under any law or rule of law for reclamation or other remedial action with respect to such site. The Attorney General shall publish the results of such study, and provide copies thereof to the Congress, as promptly as practicable following the date of the enactment of this Act. The Attorney General, based on such study, shall, to the extent he deems it appropriate and in the public interest, take such action under any provision of law in effect when uranium was produced at such site to require payment by such person of all or any part of the costs incurred by the United States for such remedial action for which he determines such person is liable.

#### TITLE II—URANIUM MILL TAILINGS LICENSING AND REGULATION DEFINITION

42 U.S.C. 2014.

SEC. 201. Section 11e. of the Atomic Energy Act of 1954, is amended to read as follows:

"Byproduct  
material."

"e. The term 'byproduct material' means (1) any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material, and (2) the tailings or wastes produced

by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content."

CUSTODY OF DISPOSAL SITE

SEC. 202. (a) Chapter 8 of the Atomic Energy Act of 1954, is amended by adding the following new section at the end thereof: 42 U.S.C. 2111  
42 U.S.C. 2113.

"SEC. 83. OWNERSHIP AND CUSTODY OF CERTAIN BY-PRODUCT MATERIAL AND DISPOSAL SITES.—

"a. Any license issued or renewed after the effective date of this section under section 62 or section 81 for any activity which results in the production of any byproduct material, as defined in section 11e. (2), shall contain such terms and conditions as the Commission determines to be necessary to assure that, prior to termination of such license— 42 U.S.C. 2002,  
2111.  
42 U.S.C. 2014.

"(1) the licensee will comply with decontamination, decommissioning, and reclamation standards prescribed by the Commission for sites (A) at which ores were processed primarily for their source material content and (B) at which such byproduct material is deposited, and

"(2) ownership of any byproduct material, as defined in section 11 e. (2), which resulted from such licensed activity shall be transferred to (A) the United States or (B) in the State in which such activity occurred if such State exercises the option under subsection b. (1) to acquire land used for the disposal of byproduct material. 42 U.S.C. 2014.

Any license in effect on the date of the enactment of this section shall either contain such terms and conditions on renewal thereof after the effective date of this section, or comply with paragraphs (1) and (2) upon the termination of such license, whichever first occurs.

"(b) (1) (A) The Commission shall require by rule, regulation, or order that prior to the termination of any license which is issued after the effective date of this section, title to the land, including any interests therein (other than land owned by the United States or by a State) which is used for the disposal of any byproduct material, as defined by section 11 e. (2), pursuant to such license shall be transferred to—

"(A) the United States, or

"(B) the State in which such land is located, at the option of such State.

"(2) Unless the Commission determines prior to such termination that transfer of title to such land and such byproduct material is not necessary or desirable to protect the public health, safety, or welfare or to minimize

Rule, regulation  
or order.

or eliminate danger to life or property. Such determination shall be made in accordance with section 181 of this Act. Notwithstanding any other provision of law or any such determination, such property and materials shall be maintained pursuant to a license issued by the Commission pursuant to section 84(b) in such manner as will protect the public health, safety, and the environment.

“(B) If the Commission determines by order that use of the surface or subsurface estates, or both, of the land transferred to the United States or to a State under subparagraph (A) would not endanger the public health, safety, welfare, or environment, the Commission, pursuant to such regulations as it may prescribe, shall permit the use of the surface or subsurface estates, or both, of such land in a manner consistent with the provisions of this section. If the Commission permits such use of such land, it shall provide the person who transferred such land with the right of first refusal with respect to such use of such land.

“(2) If transfer to the United States of title to such byproduct material and such land is required under this section, the Secretary of Energy or any Federal agency designated by the President shall, following the Commission's determination of compliance under subsection c., assume title and custody of such byproduct material and land transferred as provided in this subsection. Such Secretary or Federal agency shall maintain such material and land in such manner as will protect the public health and safety and the environment. Such custody may be transferred to another officer or instrumentality of the United States only upon approval of the President.

“(3) If transfer to a State of title to such byproduct material is required in accordance with this subsection, such State shall, following the Commission's determination of compliance under subsection d., assume title and custody of such byproduct material and land transferred as provided in this subsection. Such State shall maintain such material and land in such manner as will protect the public health, safety, and the environment.

42 U.S.C. 2002.

“(4) In the case of any such license under section 62, which was in effect on the effective date of this section, the Commission may require, before the termination of such license, such transfer of land and interests therein (as described in paragraph (1) of this subsection) to the United States or a State in which such land is located, at the option of such State, as may be necessary to protect the public health, welfare, and the environment from any effects associated with such byproduct material. In exercising the authority of this paragraph, the Commission shall take into consideration the status of the ownership of such land and interests therein and the ability of the licensee to transfer title and custody thereof to the United States or a State.



"(5) The Commission may, pursuant to a license, or by rule or order, require the Secretary or other Federal agency or State having custody of such property and materials to undertake such monitoring, maintenance, and emergency measures as are necessary to protect the public health and safety and such other actions as the Commission deems necessary to comply with the standards promulgated pursuant to section 84 of this Act. The Secretary or such other Federal agency is authorized to carry out maintenance, monitoring, and emergency measures, but shall take no other action pursuant to such license, rule or order, with respect to such property and materials unless expressly authorized by Congress after the date of enactment of this Act.

*Post*, p. 3039.

"(6) The transfer of title to land or byproduct materials, as defined in section 11 e. (2), to a State or the United States pursuant to this subsection shall not relieve any licensee of liability for any fraudulent or negligent acts done prior to such transfer.

42 U.S.C. 2014.

"(7) Material and land transferred to the United States or a State in accordance with this subsection shall be transferred without cost to the United States or a State (other than administrative and legal costs incurred in carrying out such transfer). Subject to the provisions of paragraph (1) (B) of this subsection, the United States or a State shall not transfer title to material or property acquired under this subsection to any person, unless such transfer is in the same manner as provided under section 104(h) of the Uranium Mill Tailings Radiation Control Act of 1978.

"(8) The provisions of this subsection respecting transfer of title and custody to land shall not apply in the case of lands held in trust by the United States for any Indian tribe or lands owned by such Indian tribe subject to a restriction against alienation imposed by the United States. In the case of such lands which are used for the disposal of byproduct material, as defined in section 11 e. (2), the licensee shall be required to enter into such arrangements with the Commission as may be appropriate to assure the long-term maintenance and monitoring of such lands by the United States.

"c. Upon termination on any license to which this section applies, the Commission shall determine whether or not the licensee has complied with all applicable standards and requirements under such license."

(b) This section shall be effective three years after the enactment of this Act.

(c) The table of contents for chapter 8 of the Atomic Energy Act of 1954, is amended by inserting the following new item after the item relating to section 82:

Effective date,  
42 U.S.C. 2113  
note.

"Sec. 83. Ownership and custody of certain byproduct material and disposal sites."

## AUTHORITY TO ESTABLISH CERTAIN REQUIREMENTS

42 U.S.C. 2201. SEC. 203. Section 161 of the Atomic Energy Act of 1954, is amended by adding the following new subsection at the end thereof:

42 U.S.C. 2231. "x. Establish by rule, regulation, or order, after public notice, and in accordance with the requirements of section 181 of this Act, such standards and instructions as the Commission may deem necessary or desirable to ensure—

42 U.S.C. 2014. "(1) that an adequate bond, surety, or other financial arrangement (as determined by the Commission) will be provided before termination of any license for byproduct material as defined in section 11 e. (2), by a licensee to permit the completion of all requirements established by the Commission for the decontamination, decommissioning, and reclamation of sites, structures, and equipment used in conjunction with byproduct material as so defined, and

"(2) that—

"(A) in the case of any such license issued or renewed after the date of the enactment of this subsection, the need for long term maintenance and monitoring of such sites, structures and equipment after termination of such license will be minimized and, to the maximum extent practicable, eliminated; and

"(B) in the case of each license for such material (whether in effect on the date of the enactment of this section or issued or renewed thereafter), if the Commission determines that any such long-term maintenance and monitoring is necessary, the licensee, before termination of any license for byproduct material as defined in section 11 e. (2), will make available such bonding, surety, or other financial arrangements as may be necessary to assure such long-term maintenance and monitoring.

Such standards and instructions promulgated by the Commission pursuant to this subsection shall take into account, as determined by the Commission, so as to avoid unnecessary duplication and expense, performance bonds or other financial arrangements which are required by other Federal agencies or State agencies and/or other local governing bodies for such decommissioning, decontamination, and reclamation and long-term maintenance and monitoring except that nothing in this paragraph shall be construed to require that the Commission accept such bonds or arrangements if the Commission determines that such bonds or arrangements are not adequate to carry out subparagraphs (1) and (2) of this subsection."

## COOPERATION WITH STATES

SEC. 204. (a) Section 274 b. of the Atomic Energy Act of 1954, is amended by adding "as defined in section 11 e. (1)" after the words "byproduct materials" in paragraph (1) by renumbering paragraphs (2) and (3) as paragraphs (3) and (4); and by inserting the following new paragraph immediately after paragraph (1):

"(2) byproduct materials as defined in section 11 e. (2);".

(b) Section 274 d. (2) of such Act is amended by inserting the following before the word "compatible": "in accordance with the requirements of subsection o. and in all other respects".

(c) Section 274 n. of such Act is amended by adding the following new sentence at the end thereof: "As used in this section, the term 'agreement' includes any amendment to any agreement."

"Agreement."

(d) Section 274 j. of such Act is amended—

(1) by inserting "all or part of" after "suspend";

(2) by inserting "(1)" after "finds that"; and

(3) by adding at the end before the period the following: "or (2) the State has not complied with one or more of the requirements of this section. The Commission shall periodically review such agreements and actions taken by the States under the agreements to ensure compliance with the provisions of this section."

Review.

(e) (1) Section 274 of such Act is amended by adding the following new subsection at the end thereof:

"o. In the licensing and regulation of byproduct material, as defined in section 11 e. (2) of this Act, or of any activity which results in the production of byproduct material as so defined under an agreement entered into pursuant to subsection b., a State shall require—

"(1) compliance with the requirements of subsection b. of section 83 (respecting ownership of byproduct material and land), and

"(2) compliance with standards which shall be adopted by the State for the protection of the public health, safety, and the environment from hazards associated with such material which are equivalent, to the extent practicable, or more stringent than, standards adopted and enforced by the Commission for the same purpose, including requirements and standards promulgated by the Commission and the Administrator of the Environmental Protection Agency pursuant to sections 83, 84, and 275, and

*Ante*, p. 3033.  
*Post*, p. 3039.

"(3) procedures which—

"(A) in the case of licenses, provide procedures under State law which include—

"(i) an opportunity, after public notice, for written comments and a public hearing, with a transcript,

"(ii) an opportunity for cross examination, and

"(iii) a written determination which is based upon findings included in such determination and upon the evidence presented during the public comment period and which is subject to judicial review;

"(B) in the case of rulemaking, provide an opportunity for public participation through written comments or a public hearing and provide for judicial review of the rule;

"(C) require for each license which has a significant impact on the human environment a written analysis (which shall be available to the public before the commencement of any such proceedings) of the impact of such license, including any activities conducted pursuant thereto, on the environment, which analysis shall include—

"(i) an assessment of the radiological and nonradiological impacts to the public health of the activities to be conducted pursuant to such license;

"(ii) an assessment of any impact on any waterway and groundwater resulting from such activities;

"(iii) consideration of alternatives, including alternative sites and engineering methods, to the activities to be conducted pursuant to such license; and

"(iv) consideration of the long-term impacts, including decommissioning, decontamination, and reclamation impacts, associated with activities to be conducted pursuant to such license, including the management of any byproduct material, as defined by section 11 e. (2); and

"(D) prohibit any major construction activity with respect to such material prior to complying with the provisions of subparagraph (C).

If any State under such agreement imposes upon any licensee any requirement for the payment of funds to such State for the reclamation or long-term maintenance and monitoring of such material, and if transfer to the United States of such material is required in accordance with section 83 b. of this Act, such agreement shall be amended by the Commission to provide that such State shall transfer to the United States upon termination of the license issued to such licensee the total amount collected by such State from such licensee for such purpose.

If such payments are required, they must be sufficient to ensure compliance with the standards established by the Commission pursuant to section 161 x. of this Act. No State shall be required under paragraph (3) to conduct proceedings concerning any license or regulation which would duplicate proceedings conducted by the Commission." 42 U.S.C. 2201.

"(2) The provisions of the amendment made by paragraph (1) of this subsection (which adds a new subsection o. to section 274 of the Atomic Energy Act of 1954) shall apply only to the maximum extent practicable during the three-year period beginning on the date of the enactment of this Act."

92 Stat. 3037.  
42 USC 2021  
note.

(f) Section 274 c. of such Act is amended by inserting the following new sentence after paragraph (4) thereof: "The 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 section 11 e. (2)."

42 U.S.C. 2021.

(g) Nothing in any amendment made by this section shall preclude any State from exercising any other authority as permitted under the Atomic Energy Act of 1954<sup>1</sup> respecting any byproduct material, as defined in section 11 e. (2) of the Atomic Energy Act of 1954.

42 U.S.C. 2014.  
42 U.S.C. 2021  
note.

"(h)(1) During the three-year period beginning on the date of the enactment of this Act, notwithstanding any other provision of this title, any State may exercise any authority under State law (including authority exercised pursuant to an agreement entered into pursuant to section 274 of the Atomic Energy Act of 1954) respecting (A) byproduct material, as defined in section 11 e. (2) of the Atomic Energy Act of 1954, or (B) any activity which results in the production of byproduct material as so defined, in the same manner and to the same extent as permitted before the date of the enactment of this Act, except that such State authority shall be exercised in a manner which, to the extent practicable, is consistent with the requirements of section 274 o. of the Atomic Energy Act of 1954 (as added by section 204(e) of this Act). The Commission shall have the authority to ensure that such section 274 o. is implemented by any such State to the extent practicable during the three-year period beginning on the date of the enactment of this Act. Nothing in this section shall be construed to preclude the Commission or the Administrator of the Environmental Protection Agency from taking such action under section 275 of the Atomic Energy Act of 1954 as may be necessary to implement title I of this Act."

42 USC 2021.

92 Stat. 3033.  
42 USC 2014.

92 Stat. 3036.  
42 USC 2021.

92 Stat. 3039.  
42 USC 2022.

<sup>1</sup>P.L. 96-106 (93 Stat. 800)(1979), sec. 22(d) amends sec. 204(e) by adding new paragraph (2).

<sup>2</sup>P.L. 96-106 (93 Stat. 799)(1979), sec. 22(b) amended sec. 204(h)(1) by substituting a complete new sec. 204(h)(1). Before amendment sec. 204(h)(1) read as follows:

(h) (1) On or before the date three years after the date of the enactment of this Act, notwithstanding any amendment made by this title, any State may exercise any authority under State law respecting byproduct material, as defined in section 11 e. (2) of the Atomic Energy Act of 1954, in the same manner, and to the same extent, as permitted before the enactment of this Act.

(2) An agreement entered into with any State as permitted under section 274 of the Atomic Energy Act of 1954 with respect to byproduct material as defined in section 11 e. (2) of such Act, may be entered into at any time after the date of the enactment of this Act but no such agreement may take effect before the date three years after the date of the enactment of this Act.

"(3) Notwithstanding any other provision of this title, where a State assumes or has assumed, pursuant to an agreement entered into under section 274 b. of the Atomic Energy Act of 1954, authority over any activity which results in the production of byproduct material, as defined in section 11 e. (2) of such Act, the Commission shall not, until the end of the three-year period beginning on the date of the enactment of this Act, have licensing authority over such byproduct material produced in any activity covered by such agreement, unless the agreement is terminated, suspended, or amended to provide for such Federal licensing. If, at the end of such three-year period, a State has not entered into such an agreement with respect to byproduct material, as defined in section 11 e. (2) of the Atomic Energy Act of 1954, the Commission shall have authority over such byproduct material."<sup>3</sup>

42 USC 2021.

92 Stat. 3033.  
42 USC 2014.

AUTHORITIES OF COMMISSION RESPECTING CERTAIN  
BYPRODUCT MATERIAL

SEC. 205. (a) Chapter 8 of the Atomic Energy Act of 1954, is amended by adding the following new section at the end thereof:

42 U.S.C. 2111  
*et seq.*  
42 U.S.C. 2114.

"SEC. 84. AUTHORITIES OF COMMISSION RESPECTING CERTAIN BYPRODUCT MATERIAL.—

"a. The Commission shall insure that the management of any byproduct material, as defined in section 11 e. (2), is carried out in such manner as—

42 U.S.C. 2014.

"(1) the Commission deems appropriate to protect the public health and safety and the environment from radiological and nonradiological hazards associated with the processing and with the possession and transfer of such material,

"(2) conforms with applicable general standards promulgated by the Administrator of the Environ-

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<sup>3</sup>P.L. 96-106 (93 Stat. 799)(1979), sec. 22(a) added sec. 204(h)(3).

- Infra.* mental Protection Agency under section 275, and  
“(3) conforms to general requirements established by the Commission, with the concurrence of the Administrator, which are, to the maximum extent practicable, at least comparable to requirements applicable to the possession, transfer, and disposal of similar hazardous material regulated by the Administrator under the Solid Waste Disposal Act, as amended.
- 42 U.S.C. 6091. “b. In carrying out its authority under this section, the Commission is authorized to—  
“(1) by rule, regulation, or order require persons, officers, or instrumentalities exempted from licensing under section 81 of this Act to conduct monitoring, perform remedial work, and to comply with such other measures as it may deem necessary or desirable to protect health or to minimize danger to life or property, and in connection with the disposal or storage of such byproduct material; and  
“(2) make such studies and inspections and to conduct such monitoring as may be necessary.
- 42 U.S.C. 2111. Civil penalty. Any violation by any person other than the United States or any officer or employee of the United States or a State of any rule, regulation, or order or licensing provision of the Commission established under this section or section 83 shall be subject to a civil penalty in the same manner and in the same amount as violations subject to a civil penalty under section 234. Nothing in this section affects any authority of the Commission under any other provision of this Act.”
- Ante.* p. 3033. 42 U.S.C. 2282. (b) The first sentence of section 81 of the Atomic Energy Act of 1954, is amended to read as follows: “No person may transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, own, possess, import, or export any byproduct material, except to the extent authorized by this section, section 82 or section 84.”
- 42 U.S.C. 2111. 42 U.S.C. 2112. *Supra.* (c) The table of contents for such chapter 8 is amended by inserting the following new item after the item relating to section 83:  
“Sec. 84. Authorities of Commission respecting certain byproduct material.”

AUTHORITY OF ENVIRONMENTAL PROTECTION AGENCY  
RESPECTING CERTAIN BYPRODUCT MATERIAL

- 42 U.S.C. 2021.  
42 U.S.C. 2022. SEC. 206. (a) Chapter 19 of the Atomic Energy Act of 1954, is amended by inserting after section 274 the following new section:  
“SEC. 275. HEALTH AND ENVIRONMENTAL STANDARDS FOR URANIUM MILL TAILINGS.—  
“a. As soon as practicable, but not later than one year after the date of enactment of this section, the Adminis-
- Rule.

trator of the Environmental Protection Agency (hereinafter referred to in this section as the 'Administrator') shall, by rule, promulgate standards of general application (including standards applicable to licenses under section 104(h) of the Uranium Mill Tailings Radiation Control Act of 1978) for the protection of the public health, safety, and the environment from radiological and non-radiological hazards associated with residual radioactive materials (as defined in section 101 of the Uranium Mill Tailings Radiation Control Act of 1978) located at inactive uranium mill tailings sites and depository sites for such materials selected by the Secretary of Energy, pursuant to title I of the Uranium Mill Tailings Radiation Control Act of 1978. Standards promulgated pursuant to this subsection shall, to the maximum extent practicable, be consistent with the requirements of the Solid Waste Disposal Act, as amended. The Administrator may periodically revise any standard promulgated pursuant to this subsection.

42 U.S.C. 6901  
note.

"b. (1) As soon as practicable, but not later than eighteen months after the enactment of this section, the Administrator shall, by rule, promulgate standards of general application for the protection of the public health, safety, and the environment from radiological and non-radiological hazards associated with the processing and with the possession, transfer, and disposal of byproduct material, as defined in section 11 e. (2) of this Act, at sites at which ores are processed primarily for their source material content or which are used for the disposal of such byproduct material.

Rule.

42 U.S.C. 2014.

"(2) Such generally applicable standards promulgated pursuant to this subsection for nonradiological hazards shall provide for the protection of human health and the environment consistent with the standards required under subtitle C of the Solid Waste Disposal Act, as amended, which are applicable to such hazards: *Provided, however,* That no permit issued by the Administrator is required under this Act or the Solid Waste Disposal Act, as amended, for the processing, possession, transfer, or disposal of byproduct material, as defined in section 11 e. (2) of this Act. The Administrator may periodically revise any standard promulgated pursuant to this subsection. Within three years after such revision of any such standard, the Commission and any State permitted to exercise authority under section 274 b. (2) shall apply such revised standard in the case of any license for byproduct material as defined in section 11 e. (2) or any revision thereof.

42 U.S.C. 2021.

"c. (1) Before the promulgation of any rule pursuant to this section, the Administrator shall publish the proposed rule in the Federal Register, together with a statement of the research, analysis, and other available information in support of such proposed rule, and provide

Publication in  
Federal  
Register.  
Notice, hearing  
opportunity.



Consultation. a period of public comment of at least thirty days for written comments thereon and an opportunity, after such comment period and after public notice, for any interested person to present oral data, views, and arguments at a public hearing. There shall be a transcript of any such hearing. The Administrator shall consult with the Commission and the Secretary of Energy before promulgation of any such rule.

Judicial review.

5 U.S.C. 701  
*et seq.*

"(2) Judicial review of any rule promulgated under this section may be obtained by any interested person only upon such person filing a petition for review within sixty days after such promulgation in the United States court of appeals for the Federal judicial circuit in which such person resides or has his principal place of business. A copy of the petition shall be forthwith transmitted by the clerk of court to the Administrator. The Administrator thereupon shall file in the court the written submissions to, and transcript of, the written or oral proceedings on which such rule was based as provided in section 2112 of title 28, United States Code. The court shall have jurisdiction to review the rule in accordance with chapter 7 of title 5, United States Code, and to grant appropriate relief as provided in such chapter. The judgment of the court affirming, modifying, or setting aside, in whole or in part, any such rule shall be final, subject to judicial review by the Supreme Court of the United States upon certiorari or certification as provided in section 1254 of title 28, United States Code.

"(3) Any rule promulgated under this section shall not take effect earlier than sixty calendar days after such promulgation.

42 U.S.C. 2021.

"d. Implementation and enforcement of the standards promulgated pursuant to subsection b. of this section shall be the responsibility of the Commission in the conduct of its licensing activities under this Act. States exercising authority pursuant to section 274 b. (2) of this Act shall implement and enforce such standards in accordance with subsection o. of such section.

42 U.S.C. 2014.  
42 U.S.C. 7401  
note.  
33 U.S.C. 1251  
note.  
42 U.S.C. 2019  
*et seq.*

"e. Nothing in this Act applicable to byproduct material, as defined in section 11 e. (2) of this Act, shall affect the authority of the Administrator under the Clean Air Act of 1970, as amended, or the Federal Water Pollution Control Act, as amended."

(b) The table of contents for chapter 19 of the Atomic Energy Act is amended by inserting the following new item after the item relating to section 274:

"Sec. 275. Health and environmental standards for uranium tailings."

#### AUTHORIZATION OF APPROPRIATION FOR GRANTS

Sec. 207. There is hereby authorized to be appropriated for fiscal year 1980 to the Nuclear Regulatory Com-

mission not to exceed \$500,000 to be used for making grants to States which have entered into agreements with the Commission under section 274 of the Atomic Energy Act of 1954, to aid in the development of State regulatory programs under such section which implement the provisions of this Act.

## EFFECTIVE DATE

SEC. 208. Except as otherwise provided in this title the amendments made by this title shall take effect on the date of the enactment of this Act. 42 U.S.C. 2014 note.

## CONSOLIDATION OF LICENSES AND PROCEDURES

SEC. 209. The Nuclear Regulatory Commission shall consolidate, to the maximum extent practicable, licenses and licensing procedures under amendments made by this title with licenses and licensing procedures under other authorities contained in the Atomic Energy Act of 1954. 42 U.S.C. 2113 note. 42 U.S.C. 2011 note.

## TITLE III—STUDY AND DESIGNATION OF TWO MILL TAILINGS SITES IN NEW MEXICO

## STUDY

SEC. 301. The Commission, in consultation with the Attorney General and the Attorney General of the State of New Mexico, shall conduct a study to determine the extent and adequacy of the authority of the Commission and the State of New Mexico to require, under the Atomic Energy Act of 1954 (as amended by title II of this Act) or under State authority as permitted under section 274 of such Act or under other provision of law, the owners of the following active uranium mill sites to undertake appropriate action to regulate and control all residual radioactive materials at such sites to protect public health, safety, and the environment: the former Homestake-New Mexico Partners site near Milan, New Mexico, and the Anaconda carbonate process tailings site near Bluewater, New Mexico. Such study shall be completed and a report thereof submitted to the Congress and to the Secretary within one year after enactment of this Act, together with such recommendations as may be appropriate. If the Commission determines that such authority is not adequate to regulate and control such materials at such sites in the manner provided in the first sentence of this section, the Commission shall include in the report a statement of the basis for such determination. Nothing in this Act shall be construed to prevent or delay action by a State as permitted under section 274 of the Atomic Energy Act of 1954 or under any other provision of law or by the Commission to regulate such residual radioactive materials at such sites prior to completion of such study. 42 U.S.C. 7941. 42 U.S.C. 2021. Report to Congress.

## DESIGNATION BY SECRETARY

42 U.S.C. 7942.

SEC. 302. (a) Within ninety days from the date of his receipt of the report and recommendations submitted by the Commission under section 301, notwithstanding the limitations contained in section 101(6)(A) and in section 115(a), if the Commission determines, based on such study, that such sites cannot be regulated and controlled by the State or the Commission in the manner described in section 301, the Secretary may designate either or both of the sites referred to in section 301 as a processing site for purposes of title I. Following such designation, the Secretary may enter into cooperative agreements with New Mexico to perform remedial action pursuant to such title concerning only the residual radioactive materials at such site resulting from uranium produced for sale to a Federal agency prior to January 1, 1971, under contract with such agency. Any such designation shall be submitted by the Secretary, together with his estimate of the cost of carrying out such remedial action at the designated site, to the Committee on Interior and Insular Affairs and the Committee on Interstate and Foreign Commerce of the House of Representatives and to the Committee on Energy and Natural Resources of the Senate.

Submitted to  
congressional  
committees.

(b) (1) No designation under subsection (a) shall take effect before the expiration of one hundred and twenty calendar days (not including any day in which either House of Congress is not in session because of an adjournment of more than three calendar days to a day certain or an adjournment sine die) after receipt by such Committees of such designation.

(c) Except as otherwise specifically provided in subsection (a), any remedial action under title I with respect to any sites designated under this title shall be subject to the provisions of title I (including the authorization of appropriations referred to in section 112(b)).

Approved November 8, 1978.

Legislative History:

House Report No. 95-1480, Pt. I (Comm. on Interior and Insular Affairs) and Pt. II (Comm. on Interstate and Foreign Commerce).

Congressional Record, Vol. 124 (1978):

Oct. 3, considered and passed House.

Oct. 13, considered and passed Senate, amended.

Oct. 14, House concurred in Senate amendment with amendments.

Oct. 15, Senate concurred in House amendment.

PUBLIC LAW 96-106—NOV. 9, 1979

SURFACE TRANSPORTATION ASSISTANCE  
ACT OF 1978, AMENDMENT

Public Law 96-106  
96th Congress

An Act

Nov. 9, 1979  
[H.R. 4249]

To amend title 23 of the United States Code, the Surface Transportation Assistance Act of 1978, and for other purposes.

Surface  
Transportation  
Assistance Act  
of 1978,  
amendment.  
23 USC 139.  
92 Stat. 2695.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That section 103(e)(4) of title 23, United States Code, is amended by adding at the end thereof the following new sentence: "The preceding sentence shall not apply to a designation made under section 139 of this title."

SEC. 2. (a) Section 103(e)(5) of title 23, United States Code, is amended by striking out "(5) Notwithstanding any other provision of law—" and inserting in lieu thereof "(5) Notwithstanding any other provision of law, in the case of any withdrawal of approval before November 6, 1978—".

Repeal.  
23 USC 103 note.  
92 Stat. 2694.

(b) Paragraph (2) of section 107(f) of the Federal-Aid Highway Act of 1978 (Public Law 95-599) is hereby repealed.

(c) Paragraph (6) of section 103(e) of title 23, United States Code, is renumbered as paragraph (8), and paragraph (7) of such section is renumbered as paragraph (9), including any references thereto, and such section 103(e) is further amended by inserting immediately after paragraph (5) the following new paragraphs:

Interstate  
System.

"(6) Notwithstanding any other provision of law—

"(A) in the case of any withdrawal of approval on or after November 6, 1978, of a route or portion thereof on the Interstate System, a State, subject to the approval of the Secretary, shall not be required to refund to the Highway Trust Fund any sums paid to the State for intangible costs;

"(B) in the case of any withdrawal of approval on or after November 6, 1978, of any route or portion thereof on the Interstate System under this section, a State shall not be required to refund to the Highway Trust Fund the costs of construction items, materials, or rights-of-way of the withdrawn route or portion thereof if such items, materials, and rights-of-way were acquired before November 6, 1978, if by the date of withdrawal of approval the Secretary has not approved the environmental impact statement required by the National Environmental Policy Act of 1969, and if such construction items, materials, or rights-of-way will be or have been applied (i) to a transportation project permissible under this title, (ii) to a public conservation or public recreation purpose, or (iii) to any other public purpose determined by the Secretary to be in the public interest on condition that the State gives assurances satisfactory to the Secretary that such construction items, materials, or rights-of-way have been or will be so applied by the State, or any political subdivision thereof, to a project under clause (i), (ii), or (iii) within ten years from the date of withdrawal of approval;

42 USC 4321  
note.

"(7) In any case where a withdrawal of approval of a route or portion thereof on the Interstate System on or after November 6, 1978, does not come within the provisions of paragraph (6)(B) of this subsection, the State shall refund to the Highway Trust Fund the

costs of construction items, materials, and rights-of-way of the withdrawn route or portion thereof, except that if the State gives assurances satisfactory to the Secretary that such items, materials, and rights-of-way have been or will be applied to a transportation project permissible under this title within ten years from the date of withdrawal of approval, the amount of such repayment shall be the difference between the amount received for such items, materials, and rights-of-way and the amount which would be received in accordance with the current Federal share applicable to the transportation project to which such items, materials, and rights-of-way were or are to be applied; and".

SEC. 3. Section 109(1)(A) of title 23, United States Code, is amended by striking out "any aspect of". 92 Stat. 2696.

SEC. 4. Clauses (1) and (2) of subsection (b) of section 115 of title 23, United States Code, are redesignated as (A) and (B), respectively, including any references thereto. Such subsection (b) is further amended by inserting "(1)" immediately after "(b)" and by adding at the end thereof the following new paragraph:

"(2) For any project under construction on January 1, 1978, on the Interstate System and converted to a regularly funded project after January 1, 1978, for which the proceeds of bonds issued by the State, county, city, or other political subdivision of the State were used, any interest earned and payable on such bonds by the date of conversion is an eligible cost of construction, to the extent that the proceeds of such bonds have actually been expended in the construction of such projects."

SEC. 5. (a) The fifth sentence of section 118(b) of title 23, United States Code, is amended to read as follows: "Any amount apportioned to the States for the Interstate System under subsection (b)(5)(B) of section 104 of this title shall continue to be available for expenditure in that State for a period of two years after the close of the fiscal year for which such sums are authorized and any amounts so apportioned remaining unexpended at the end of such period shall lapse." 23 USC 104.

(b) The amendment made by subsection (a) of this section shall apply to all amounts apportioned under section 104(b)(5)(B) of title 23, United States Code, for the fiscal year 1978 and for subsequent fiscal years. 23 USC 118 note.

SEC. 6. Section 131(c)(5) of title 23, United States Code, is amended by striking out "distribution of" and inserting in lieu thereof "distribution by". 92 Stat. 2699.

SEC. 7. (a) The first sentence of section 144(d) of title 23, United States Code, is amended by striking out "or rehabilitating such bridge with a comparable facility" and inserting in lieu thereof "such bridge with a comparable facility or in rehabilitating such bridge". 92 Stat. 2702.

(b) Section 144(m) of title 23, United States Code, is amended by striking out "major repairs" and inserting in lieu thereof "major work".

SEC. 8. (a) The third sentence of subsection (g) of section 144 of title 23, United States Code, is amended by striking out the period at the end thereof and inserting in lieu thereof a comma and the following: "and for any project for a highway bridge the replacement or rehabilitation costs of which is less than \$10,000,000 if such cost is at least twice the amount apportioned to the State in which such bridge is located under subsection (e) of this section for the fiscal year in which application is made for a grant for such bridge." 92 Stat. 2702.

(b) Notwithstanding any other provision of law discretionary bridge funds authorized under section 144(g) of title 23, United States Code, for fiscal year 1980 may be transferred to a State's apportionment under section 104(b)(6) of title 23, United States Code, to repay funds 23 USC 144 note.

obligated under section 104(b)(6) of title 23, United States Code, between June 1 and July 31, 1979, for bridge projects which are eligible for funding by virtue of the amendment in subsection (a) of this section.

SEC. 9. Section 215(f) of title 23, United States Code, is amended by striking out "chapters 1 and 5" and inserting in lieu thereof "chapter 1".

92 Stat. 2723. SEC. 10. (a) The last sentence of section 219(c) of title 23, United States Code, is amended by striking out "construction" and inserting in lieu thereof "improvement".

92 Stat. 2722. (b) Subsection (g) of section 152 of title 23, United States Code, is amended by striking out "September 30" and inserting in lieu thereof "December 30", and by striking out "January 1" and inserting in lieu thereof "April 1".

SEC. 11. Section 321(b) of title 23, United States Code, is amended by striking out "paragraphs (1), (2), (3)" and inserting in lieu thereof "paragraphs (1), (2)," and by striking out "70 per centum" and inserting in lieu thereof "75 per centum".

Repeal. SEC. 12. Subsection (e) of section 123 of the Federal-Aid Highway Act of 1978 (Public Law 95-599) is hereby repealed.

92 Stat. 2701. SEC. 13. (a) Subsection (a) of section 143 of the Federal-Aid Highway Act of 1978 (Public Law 95-599) is amended (1) by striking out "section 129" and inserting in lieu thereof "sections 129 and 301", (2) by inserting "for I-88 traffic" immediately after "are free of tolls" each of the two places it appears, and (3) by inserting "and reconstruction" immediately after "construction".

92 Stat. 2712.

(b) Subsection (b) of such section 143 is amended to read as follows: "(b) The Secretary of Transportation is authorized to approve as a project on the Interstate System the construction of an additional lane in each direction on route I-90 between exits 24 and 25½ on condition that all lanes on I-90 between exits 24 and 26 are free of tolls for I-88 traffic."

92 Stat. 2713. SEC. 14. Section 144 of the Federal-Aid Highway Act of 1978 (Public Law 95-599) is amended by adding at the end thereof the following new subsection:

23 USC 109 note.

"(d) This section shall not apply to the Commonwealth of Puerto Rico."

92 Stat. 2714. SEC. 15. Section 147 of the Federal-Aid Highway Act of 1978 (Public Law 95-599) is amended by inserting immediately after the fourth sentence of such section the following new sentence: "Such additional funds as may be necessary to complete the projects shall be set aside for such purpose from the amount authorized for the fiscal year ending September 30, 1981, by section 202(6) of the Highway Safety Act of 1978, before any apportionment of such amount under section 144(e) of title 23, United States Code, and such funds shall be available for obligation in the same manner and to the same extent as funds set aside under authority of the preceding sentence."

23 USC 144 note.

92 Stat. 2727.

SEC. 16. (a) The first sentence of section 164 of the Federal-Aid Highway Act of 1978 (Public Law 95-599) is amended by striking out "toll".

92 Stat. 2721.

23 USC 129 note.

(b) The second sentence of such section 164 is amended by striking out "portions which remain free to public travel." and inserting in lieu thereof "those portions which have not been incorporated into the Interstate System; and also determine a method of allocating bonded indebtedness between those portions of the Interstate System on which tolls are collected and those portions which are toll free."

(c) The third sentence of such section 164 is amended by striking out "recommended" and inserting in lieu thereof "recommend".

SEC. 17. (a) Section 5(a)(2)(A) of the Urban Mass Transportation Act of 1964 is amended by striking out "subparagraph (C)" and inserting in lieu thereof "subparagraph (B)".

92 Stat. 2739.  
49 USC 1604.

(b) The last subparagraph of paragraph (2) of subsection (a) of section 5 of the Urban Mass Transportation Act of 1964 is amended by striking out "(C)" and inserting in lieu thereof "(B)".

(c) The last sentence of section 5(a)(3)(A) of the Urban Mass Transportation Act of 1964 is amended by striking out "capital" and inserting in lieu thereof "construction".

(d) The third sentence of section 5(a)(4)(A) of the Urban Mass Transportation Act of 1964 is amended by striking out "in the construction of bus-related facilities", and inserting in lieu thereof "and the construction of bus-related facilities".

SEC. 18. Section 119(b) of title 23, United States Code, is amended by deleting the date "October 1st" in the second sentence and inserting in lieu thereof the date "January 1st", and by deleting "funds apportioned to such State for that fiscal year" in the third sentence and inserting in lieu thereof "next apportionment of funds to such State".

92 Stat. 2698.

SEC. 19. Section 125(b) of title 23, United States Code, is amended by inserting at the end of the first sentence the following new sentence: "Notwithstanding any provision of this chapter actual and necessary costs of maintenance and operation of ferryboats providing temporary substitute highway traffic service, less the amount of fares charged, may be expended from the emergency fund herein authorized on the Federal-aid highway systems, including the Interstate System."

SEC. 20. (a) Section 170(b) of the Surface Transportation Act of 1973 is amended by striking "one year" and inserting in lieu thereof "eighteen months".

92 Stat. 2724.  
42 USC 5904  
note.

(b) Section 170(l) is amended to read as follows:

"(l) There is hereby authorized to be appropriated, to remain available until expended, to the Commission not to exceed \$3,000,000 to carry out the purposes of this section."

Appropriation  
authorization.

SEC. 21. Section 161(f) of the Federal-Aid Highway Act of 1973, Public Law 93-87, is amended by inserting after "managed" the following: "and maintained".

87 Stat. 279.

SEC. 22. (a) Section 204(h) of the Uranium Mill Tailings Radiation Control Act of 1978 is amended by adding at the end thereof the following new paragraph:

92 Stat. 306.  
42 USC 2021  
note.

"(3) Notwithstanding any other provision of this title, where a State assumes or has assumed, pursuant to an agreement entered into under section 274 b. of the Atomic Energy Act of 1954, authority over any activity which results in the production of byproduct material, as defined in section 11 e. (2) of such Act, the Commission shall not, until the end of the three-year period beginning on the date of the enactment of this Act, have licensing authority over such byproduct material produced in any activity covered by such agreement, unless the agreement is terminated, suspended, or amended to provide for such Federal licensing. If, at the end of such three-year period, a State has not entered into such an agreement with respect to byproduct material, as defined in section 11 e. (2) of the Atomic Energy Act of 1954, the Commission shall have authority over such byproduct material."

42 USC 2021.

92 Stat. 3033.  
42 USC 2014.

(b) Section 204(h)(1) of the Uranium Mill Tailings Radiation Control Act of 1978 is amended to read as follows:

"(h)(1) During the three-year period beginning on the date of the enactment of this Act, notwithstanding any other provision of this title, any State may exercise any authority under State law (includ-



42 USC 2021. ing authority exercised pursuant to an agreement entered into pursuant to section 274 of the Atomic Energy Act of 1954) respecting (A) byproduct material, as defined in section 11 e. (2) of the Atomic Energy Act of 1954, or (B) any activity which results in the production of byproduct material as so defined, in the same manner and to the same extent as permitted before the date of the enactment of this Act, except that such State authority shall be exercised in a manner which, to the extent practicable, is consistent with the requirements of section 274 o. of the Atomic Energy Act of 1954 (as added by section 204(e) of this Act). The Commission shall have the authority to ensure that such section 274 o. is implemented by any such State to the extent practicable during the three-year period beginning on the date of the enactment of this Act. Nothing in this section shall be construed to preclude the Commission or the Administrator of the Environmental Protection Agency from taking such action under section 275 of the Atomic Energy Act of 1954 as may be necessary to implement title I of this Act."

92 Stat. 3036.  
42 USC 2021. (c) The last sentence of section 83 a. of the Atomic Energy Act of 1954 is amended to read as follows: "Any license which is in effect on the effective date of this section and which is subsequently terminated without renewal shall comply with paragraphs (1) and (2) upon termination."

92 Stat. 3039.  
42 USC 2022.  
42 USC 7911.  
92 Stat. 3033.  
42 USC 2113. (d) Section 204(e) of the Uranium Mill Tailings Radiation Control Act of 1978 is amended by adding after paragraph (1) the following new paragraph:

"(2) The provisions of the amendment made by paragraph (1) of this subsection (which adds a new subsection o. to section 274 of the Atomic Energy Act of 1954) shall apply only to the maximum extent practicable during the three-year period beginning on the date of the enactment of this Act."

92 Stat. 3033.  
42 USC 2113. (e) Section 83(b)(1)(A) of the Atomic Energy Act of 1954 is amended—

(1) by striking all that follows "transferred to—" down through "Unless" and inserting in lieu thereof the following:

"(i) the United States, or

"(ii) the State in which such land is located, at the option of such State,

unless"; and

(2) by striking "section 84 b." and inserting in lieu thereof "section 81 of this Act".

## TITLE II—AUTHORIZATION OF REPAYMENT

92 SEC. 201. (a) That the State of Indiana (hereinafter referred to as the "State"), acting by and through the Indiana State Highway Commission, and the Indiana Toll Road Commission (hereinafter referred to as the "commission") shall be free of all restrictions with respect to the issuance of bonds or other obligations constituting a lien against the East-West Toll Road in northern Indiana (Interstate Route 80/90) (hereinafter referred to as the "toll road") or payable out of revenues derived from the toll road and with respect to the imposition, collection, and use of tolls and other charges on the toll road contained in title 23, United States Code, or in any regulation or agreement under such title upon—

23 USC 101 et seq.

(1) repayment to the Treasurer of the United States of the sum of \$1,936,894, which is the amount of Federal-aid highway funds received for the construction of the interchanges connecting the toll road with—

(A) Interstate Route 69 in Steuben County, Indiana;

(B) Interstate Route 80 in Lake County, Indiana; and  
 (C) Interstate Route 65 in Lake County, Indiana; and  
 (2) issuance of new bonds by the commission at such time and in such principal amount as will provide bond proceeds available for payment of costs of construction and acquisition of right of way not less than the amount required to undertake and complete the required construction and the required acquisition of right of way, as defined in the subparagraphs (D) and (E) of this paragraph, such issuance to be made subject to a trust indenture which will be binding on the commission and will provide—

Issuance of new bonds.

(A) that the required construction and required acquisition of right of way will be performed and that the funds from the bond proceeds will be allocated sufficient to perform the required construction and the required acquisition of right of way before any other commitment of the bond proceeds (other than the refunding of outstanding bonds and payment of costs of issuance) is made;

(B) that any revenues from the toll road, and any proceeds of the bonds issued in connection with the toll road shall, after payment of the costs of issuance, be used only (i) for payment of the costs, direct and indirect, of the required construction and the required acquisition of right of way; (ii) for the payment of the costs, direct and indirect, of the operation, maintenance, repair, and improvement of the toll road, including the construction of lane additions and the construction or modification of, and acquisition of right of way for interchanges; (iii) for the debt service, payment, and refunding of outstanding bonds, the proceeds of which were used for the construction of the toll road or any improvement thereto or for the refunding of such bonds; and (iv) for the payment to be made under paragraph (1) of this section and for the repayment to the State out of the proceeds of the sale of such new bonds of amounts required to be paid by the commission to the State under the provisions of title 8, article 15, chapter 2, section 20 of the Indiana Code of 1971, as amended to the date of enactment of this Act;

(C) that the commission will promptly commence acquisition of rights of way and preparation of final plans and specifications for the required construction and that it will commence the required construction on or before December 31, 1981, and that the commission will promptly begin acquiring all the required acquisition of right of way and will commence acquiring such rights of way on or before December 31, 1981;

(D) that the term "required construction" shall mean and include the following, all given equal priority:

"Required construction."

(i) construction of a new interchange at Indiana State Highway 912 South (Cline Avenue) in Lake County, Indiana, and

(ii) construction of a new interchange at Mishawaka in St. Joseph County, Indiana, between mileposts 080 and 085 of the toll road after consultation with the executive authority of the County of St. Joseph and the executive authority of the city of Mishawaka, Indiana, and

(iii) construction of a new interchange in Elkhart County, Indiana, located between mileposts 095 and 102 of the toll road after consultation with the executive authority of the county of Elkhart, and

(iv) construction of a new interchange at Willowcreek Road in Porter County, Indiana, and

(v) construction of a new interchange at Indiana State Highway 912 North (Cline Avenue) in Lake County, Indiana, and

(vi) construction of a new interchange at Indiana Highway 53 (Broadway) in Lake County, Indiana, and

(vii) completion of construction of a new interchange at United States Highway 31 bypass in St. Joseph County, Indiana, located at milepost 072 of the toll road;

"Required acquisition of right of way."

(E) that the term "required acquisition of right of way" shall mean and include the following:

(i) acquisition of right of way at State Road 149 in Porter County, Indiana, sufficient for placement of a future interchange as construction funds (other than proceeds of the bonds issued in connection with the trust indenture provided herein) become available and after consultation with the executive authority of the county of Porter, and

(ii) acquisition of right of way at United States Highway 20 in LaPorte County, Indiana, sufficient for placement of a future interchange as construction funds (other than proceeds of the bonds issued in connection with the trust indenture provided for herein) become available and after consultation with the executive authority of the county of LaPorte.

(b) The amount repaid to the United States under this title shall be deposited to the credit of the appropriation for "Federal-Aid Highway (Trust Fund)". Such repayment shall be credited to the unprogrammed balance of the Federal-aid highway funds of the same class last apportioned to the State of Indiana. The amount so credited shall be in addition to all other funds then apportioned to the State of Indiana and shall be available for expenditure in accordance with the provisions of title 23, United States Code.

23 USC 101 et seq.

Approved November 9, 1979.

#### LEGISLATIVE HISTORY:

HOUSE REPORT No. 96-288 (Comm. on Public Works and Transportation).

SENATE REPORT No. 96-333 (Comm. on Environment and Public Works).

CONGRESSIONAL RECORD, Vol. 125 (1979):

July 9, considered and passed House.

Oct. 24, considered and passed Senate, amended.

Oct. 26, House concurred in certain Senate amendments, and in Senate amendment No. 7 with an amendment.

Oct. 29, Senate agreed to House amendment.



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

TO: ALL RECIPIENTS OF THE GENERIC ENVIRONMENTAL IMPACT STATEMENT ON  
URANIUM MILLING

Please find attached a copy of the Federal Register Notice pertaining to regulations on Uranium Mill Tailings Licensing (44 FR 50012); a proposed Federal Register Notice containing corrections to 44 FR 50012; and, a Federal Register Notice on extension of the comment period for the draft Generic Environmental Impact Statement on Uranium Milling (GEIS) and announcement of two informal public hearings on the GEIS and regulation changes.

**NUCLEAR REGULATORY  
COMMISSION****10 CFR Parts 40, 150****Uranium Mill Tailings Licensing****AGENCY:** Nuclear Regulatory Commission.**ACTION:** Final Regulations with request for comments.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations to conform to the requirements of the Uranium Mill Tailings Radiation Control Act of 1978 and to the standards set forth in the draft Generic Environmental Impact Statement Uranium Milling. The bulk of these regulations are being published in proposed form. (See proposed rules published elsewhere in this part of the **Federal Register**.) The Commission finds it necessary, however, to issue as immediately effective a temporary general license to authorize the possession and storage of mill tailings or wastes to prevent existing milling operations in both Agreement and non-Agreement States from being in technical violation of the Atomic Energy Act of 1954, as amended by the Uranium Mill Tailings Radiation Control Act of 1978. The immediately effective regulations relating to the general license, such as amendments to the definition of "byproduct material," and to the coverage of tailings in Agreement States, serve two functions. They reflect the NRC's legal interpretation of the new Act necessitating the general license and clarify the application of the general license. Accordingly, these regulations must also be made immediately effective.

**DATES:** Effective date: August 24, 1979. Comments on or before October 24, 1979.

**ADDRESSES:** Written comments should be submitted to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Attention: Docketing and Service Branch. Copies of comments on these amendments may be examined in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C.

**FOR FURTHER INFORMATION CONTACT:** Don F. Harmon, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (phone 301/433-5910) or Hubert J. Miller, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (phone 301/427-4103).

**SUPPLEMENTARY INFORMATION:** These immediately effective regulations are closely related to the proposed rules implementing the Uranium Mill Tailings Radiation Control Act of 1978 and the draft Generic Environmental Impact Statement on Uranium Milling. Thus, the two sets of amendments should be read together. (See proposed rules published elsewhere) in this part of the **Federal Register**.

On May 17, 1979, the Commission met to determine the issue of the timing of the effectiveness of certain requirements of the Uranium Mill Tailings Radiation Control Act of 1978. At this meeting it was determined that the NRC has immediate licensing authority over mill tailings, now defined as section 11e(2) byproduct material in the Atomic Energy Act of 1954, as amended; that the new requirements for agreement state regulation of tailings and milling operations will not take effect until three years after the date of enactment of the mill tailings legislation; and that during that three-year interim, the legislation requires that NRC assume concurrent jurisdiction over tailings in both Agreement and non-Agreement States. The Commission also determined that the definition of section 11e(2) byproduct material includes the above-ground wastes from in situ extraction operations.

New § 40.26 is added to 10 CFR Part 40 to establish a temporary general license to authorize the possession and storage of mill tailings or wastes. The general license will prevent existing milling operations with valid licenses from being in technical violation of the Atomic Energy Act of 1954, as amended by the Uranium Mill Tailings Radiation Control Act of 1978. The Commission believes this general license is consistent with the Congressional intent to implement the mill tailings legislation in a manner designed to minimize unnecessary disruption. As provided in section 40.20 of 10 CFR Part 40, a general license is effective without filing of an application or the issuance of licensing documents to particular persons. This general license is applicable only to persons who possess appropriate specific licenses issued by the Commission or Agreement States to authorize uranium milling activities. The authority to possess, use, or own tailings under the general license shall expire upon the expiration or renewal of the underlying NRC or Agreement State specific milling license.

The Commission notes that all of its existing active milling licenses have been reviewed or are being reviewed under the provisions of the National

Environmental Policy Act (NEPA). All NRC licenses presently contain, or will contain, requirements for tailings reclamation, mill and site cleanup, and surety arrangements to cover these costs. For the most part, present requirements and conditions are substantially the same as the requirements set forth in the proposed amendments concerning uranium milling, and most milling operations in non-Agreement States have already committed to specific plans for decommissioning and tailings disposal meeting the new requirements. NRC uranium milling licenses that have been granted under the NEPA process during the period over which the NRC's generic environmental impact statement or uranium milling was being developed were issued with the express condition that approved waste generating processes and mill tailings management practices were subject to revision in accordance with the conclusions of the final generic environmental impact statement and any related rulemaking. In the process of reevaluating approved mill operator plans upon expiration or renewal to meet the new regulatory requirements, the NRC staff plans to incorporate into applicable specific licenses the authority to possess and store byproduct material covered by this general license.

Under the provisions of this general license, Agreement State licensees will not be required to obtain a specific NRC license until such time as the licensee's Agreement State specific license expires or is renewed. The Commission notes in this regard that there presently exist Agreement State regulations and requirements governing the control of tailings in Agreement States that appear adequate to protect the public health and safety during the interim period until such licenses expire or are renewed. At such time as each Agreement State license expires or is renewed, it will be necessary at least until November 1, 1981, for the Agreement State licensee to apply for and obtain a specific NRC license covering the possession of byproduct material. The Commission intends to review each application under the NEPA process and impose any necessary requirements as may be necessary to protect the public health and safety. Given that tailings piles in Agreement States covered by this general license have been in existence for several years, the Commission does not believe that the relatively small incremental increase to such piles during the interim time until licenses expire or are renewed will foreclose available alternatives for

reducing or avoiding adverse environmental and other effects or result in irreversible or irretrievable commitments of source. The Commission has concluded that the issuance of the general license is not a major Federal action significantly affecting the quality of the human environment and as such does not require an environmental impact statement. The Commission further notes in this regard that the authority to possess, own, or receive title to tailings now defined as byproduct material under this general license is subject to NRC remedial orders as necessary to protect the public health and safety and to correct any situations in which events might require more immediate Commission attention to insure proper control of tailings.

Section 40.4 of 10 CFR Part 40 is amended to include a new definition of "byproduct material." This amendment, which includes uranium and thorium mill tailings as byproduct material licensable by the Commission, is required by the recently enacted Uranium Mill Tailings Radiation Control Act. Discrete above-ground wastes from in situ or solution extraction are covered by this definition, although the underground ore bodies depleted by the extraction process are not covered. The Commission considered amending 10 CFR Part 30, "Rules of General Applicability to Licensing of Byproduct Material," to specify licensing requirements concerning tailings, but has concluded that it is more appropriate to amend 10 CFR Part 40. The legislative record of the mill tailings legislation makes it clear that the expanded definition of byproduct material covers only mill tailings or wastes, which are exclusively associated with 10 CFR Part 40 licensing matters.

The amendments to 10 CFR Part 150 are to conform to Part 40's new definition of byproduct material and to Part 40's coverage of such byproduct material in Agreement States for the three years following enactment of the Uranium Mill Tailings Radiation Control Act of 1978. This is in accordance with the statute's provisions requiring NRC licensing of tailings in Agreement States for the three-year interim. Pursuant to the mill tailings legislation, however, Agreement States may exercise concurrent jurisdiction over tailings and wastes for the three-year interim.

The Commission finds that because the regulations supporting the general license must be effective immediately so as to prevent existing milling operations from being in technical violation of the

Atomic Energy Act, good cause exists pursuant to 5 U.S.C. 553 to waive the 30-day comment period, as impracticable and contrary to the public interest, and make the amendments to 10 CFR 40.1, 40.2a, 40.3, 40.4, 40.26, 150.3, and 150.15 immediately effective. The Commission notes in this regard that informal written comments on this matter were solicited and received from industry, environmental groups, and several states. (These comments may be found in the Commission's public document room in a memorandum dated May 9, 1979, from the Executive Legal Director to the Commission entitled "Staff Response to the Commission Request for Further Information Regarding SECY-79-88 'Timing of Certain Requirements of the Uranium Mill Tailings Radiation Control Act of 1978'.") Comments on these amendments are invited, however, and the new regulations remain subject to further modification in response to such comments.

(Secs. 11.e(2), 81, 83, 84, 161b, 174; Pub. L. No. 95-703, 88 Stat. 948 et seq. (42 U.S.C. 2014e.(2), 2111, 2113, 2114, 2201b, 2021)).

Dated at Washington, D.C. this 22nd day of August 1979.

For the Nuclear Regulatory Commission,  
Samuel J. Chilk,  
Secretary of the Commission.

#### Regulatory Changes

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the Uranium Mill Tailings Radiation Control Act of 1978, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapters 40 and 150, Code of Federal Regulations are published as a document subject to codification.

1. § 40.1 of 10 CFR 40 is amended by revising paragraphs (a) and (b) as follows:

##### § 40.1 Purpose.

(a) The regulations in this part establish procedures and criteria for the issuance of licenses to receive title to, receive, possess, use, transfer, deliver, or import into or export from the United States source and byproduct materials, as defined in this Part, and establish and provide for the terms and conditions upon which the Commission will issue such licenses. The regulations in this Part do not establish procedures and criteria for the issuance of licenses for material covered under Title I of the Uranium Mill Tailings Radiation Control Act of 1978 (92 Stat. 3021).

(b) The regulations contained in this part are issued pursuant to the Atomic Energy Act of 1954, as amended (68 Stat.

919), Title II of the Energy Reorganization Act of 1974 (88 Stat. 1242), and Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (42 U.S.C. 7901).

2. § 40.2a of 10 CFR 40 is added to read as follows:

##### § 40.2a Temporary coverage in Agreement States.

Until November 8, 1981, the regulations in this Part shall govern the Commission's licensing of byproduct material as defined in this Part in Agreement States.

3. § 40.3 of 10 CFR 40 is revised to read as follows:

##### § 40.3 License requirements.

No person subject to the regulations in this Part shall receive title to, own, receive, possess, use, transfer, deliver, or import into or export from the United States byproduct material as defined in this Part or any source material after removal from its place of deposit in nature, except as authorized in a specific or general license issued by the Commission pursuant to the regulations in this Part.

4. § 40.4 of 10 CFR 40 is amended by revising paragraphs 40.4(a-1), 40.4(e), and 40.4(l) and adding new paragraphs 40.4(b-1) and 40.4(p).

##### § 40.4 Definitions.

(a-1) "Byproduct Material" means the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute "byproduct material" within this definition.

(b-1) "Department of Energy" means the United States Department of Energy or its duly authorized representative.

(e) "Persons" means (1) any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, Government agency other than the Commission or the Department of Energy except that the Department of Energy shall be considered a person within the meaning of the regulations in this Part to the extent that its facilities and activities are subject to the licensing and related regulatory authority of the Commission pursuant to section 202 of the Energy Reorganization Act of 1974 (88 Stat.

1244) and the Uranium Mill Tailings Radiation Control Act of 1978 (92 Stat. 21), any State or any political subdivision of, or any political entity within a State, any foreign government or nation or any subdivision of any such government or nation, or other entity; and (2) any legal successor, representative, agent or agency of the foregoing.

(1) With the exception of "byproduct material" as defined in Section 11e. of the Act, other terms defined in Section 11 of the Act shall have the same meaning when used in the regulation in this Part.

(p) "Uranium Milling" means any activity that results in the production of byproduct material as defined in this Part.

5. § 40.26 of 10 CFR 40 is added to read as follows:

**§ 40.26 General license for possession and storage of byproduct material as defined in this Part.**

(a) A general license is hereby issued to receive title to, own, or possess byproduct material as defined in this Part without regard to form or quantity.

(b) The general license in paragraph (a) of this section applies only:

(1) In the case of licensees of the Commission, where activities that result in the production of byproduct material are authorized under a specific license issued by the Commission pursuant to this Part, to byproduct material possessed or stored at an authorized disposal containment area or transported incident to such authorized activity; Provided, that authority to receive title to, own, or possess byproduct material under this general license shall terminate when the specific license for source material expires, is

renewed, or is amended to include a specific license for byproduct material as defined in this Part; or

(2) In Agreement States until November 8, 1981, where activities that result in the production of byproduct material are authorized under a specific license issued by the Agreement State on or before May 17, 1979, to byproduct material possessed, or stored at an authorized disposal containment area or transported incident to such authorized activities; Provided, that authority to receive title to, own, or possess byproduct material under such general license shall terminate when such Agreement State license expires or is renewed, whichever first occurs.

(c) The general license in paragraph (a) of this section is subject to:

(1) The provisions of Parts 19, 20, 21, and §§ 40.1, 40.2, 40.2a, 40.3, 40.4, 40.5, 40.6, 40.41, 40.46, 40.61, 40.62, 40.63, 40.65, 40.71, and 40.81 of Part 40 of this Chapter; and

(2) The documentation of daily inspections of tailings or waste retention systems and the immediate notification of the appropriate NRC regional office as indicated in Appendix D of 10 CFR Part 20, or the Director, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, of any failure in a tailings or waste retention system which results in a release of tailings or waste into unrestricted areas, and/or of any unusual conditions (conditions not contemplated in the design of the retention system) which if not corrected could lead to failure of the system and result in a release of tailings or waste into unrestricted areas; and any additional requirements the Commission may by order deem necessary.

6. § 150.3 of 10 CFR 150 is amended by revising § 150.3(c) to read as follows:

**§ 150.3 Definitions.**

(c) "Byproduct material" means (1) any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; or (2) the tailings or wastes produced by the extraction.

7. § 150.15 of 10 CFR 150 is amended by adding a new paragraph (a)(7), to read as follows:

**§ 150.15 Persons not exempt.**

(a) \* \* \*

(7) Until November 8, 1981, the receipt of title to, ownership of, receipt of, possession of, use of, transfer of, delivery of, import or export of the byproduct material as defined in

§ 150.3(c)(2) of this Part; Provided, however, that during this period any State may exercise any authority under State law respecting such material in the same manner, and to the same extent, as permitted before enactment of the Uranium Mill Tailings Radiation Control Act of 1978. In case of conflict between Federal and State requirements regarding a license, the Federal license requirements shall prevail unless the State requirements are more stringent than the Federal requirements.

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BILLING CODE 7590-01-M

<sup>1</sup> The Department of Energy facilities and activities identified in section 202 are:

(1) Demonstration Liquid Metal Fast Breeder reactors when operated as part of the power generation facilities of an electric utility system, or when operated in any other manner for the purpose of demonstrating the suitability for commercial application of such a reactor.

(2) Other demonstration nuclear reactors, except those in existence on January 19, 1975, when operated as part of the power generation facilities of an electric utility system, or when operated in any other manner for the purpose of demonstrating the suitability for commercial application of such a reactor.

(3) Facilities used primarily for the receipt and storage of high-level radioactive wastes resulting from licensed activities.

(4) Retrieval Surface Storage Facilities and other facilities authorized for the express purpose of subsequent long-term storage of high-level radioactive waste generated by the Department of Energy, which are not used for, or are part of, research and development activities.

**NUCLEAR REGULATORY COMMISSION**

[10 CFR Parts 30, 40, 70, 150, and 170]

**Criteria Relating to Uranium Mill Tailings and Constructions of Major Plants****AGENCY:** U.S. Nuclear Regulatory Commission.**ACTION:** Proposed rules.

**SUMMARY:** The proposed amendments to 10 CFR Parts 40 and 150 would incorporate licensing requirements for uranium and thorium mills and their tailings and wastes into the Commission's regulations. The proposed amendments to Parts 40 and 150 are derived from a draft generic environmental impact statement on uranium milling and the requirements contained in the Uranium Mill Tailings Radiation Control Act of 1978. The proposed amendments to Parts 30 and 70 would require a final environmental assessment be completed by the NRC prior to construction of other types of major plants. The proposed amendments to 10 CFR 170 set forth the fees to be charged in conjunction with licenses authorizing the possession of tailings. These proposed regulation changes and the draft generic environmental impact statement referred to above will be the subjects of public hearings to be held in October at locations in western milling regions. The general purpose of these hearings will be to receive comments on these proposed regulation changes and the draft generic environmental impact statement. More specific information concerning these hearings will be made available in a forthcoming **Federal Register** notice.

Closely related to these proposed regulations are immediately effective regulations pertaining to a general license authorizing possession of tailings by existing milling operations with valid specific licenses for milling. Although the immediately effective regulations are formally published elsewhere in this part of the **Federal Register**, they are shown here for purposes of clarity and continuity.

**DATE:** Comment period expires October 24, 1979.

**ADDRESSES:** Written comments should be submitted to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch. Copies of comments on the proposed amendment may be examined in the Commission's Public Document Room at 1717 H Street, N.W., Washington, D.C.

**FOR FURTHER INFORMATION CONTACT:** Don F. Harmon, Office of Standards

Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (phone 301/433-5910) or Hubert J. Miller, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (phone 301/427-4103).

**SUPPLEMENTARY INFORMATION:** The Nuclear Regulatory Commission is amending its regulations to conform to the requirements of the Uranium Mill Tailings Radiation Control Act of 1978 and to the standards set forth in the draft generic environmental impact statement on uranium milling. The bulk of these regulations are published here in proposed form. The Commission finds it necessary, however, to issue as immediately effective a temporary general license to authorize the possession and storage of mill tailings or wastes to prevent existing milling operations in both Agreement and non-Agreement States from being in technical violation of the Atomic Energy Act of 1954, as amended by the Uranium Mill Tailings Radiation Control Act of 1978. Although the immediately effective regulations are formally published elsewhere in this part of the **Federal Register**, they are shown here for the purposes of clarity and continuity. In a notice published in the **Federal Register** on June 3, 1976, the U.S. Nuclear Regulatory Commission announced its intention to prepare a generic environmental impact statement (GEIS) on uranium milling. The Commission was acting partly in response to a petition for rulemaking filed with the Commission by the Natural Resources Defense Council, Inc. The Commission has evaluated the environmental impacts of uranium milling and has published a draft GEIS (NUREG-0511) on this subject (See Notice of Availability, April 26, 1979, 44 FR 24963).

The GEIS concludes that there is a need for certain definitive rule changes to the Commission's regulations to establish specific uranium mill licensing requirements, particularly with regard to the tailings or wastes generated during the milling process. The rule change proposed herein to 10 CFR 40 will incorporate into the Commission's regulations the additional needed requirements derived from the draft GEIS. These proposed additional requirements and potential alternatives are discussed in detail in the draft GEIS along with their supporting bases. It is not possible to provide here a summary of all the complex issues, alternatives, and supporting technical bases addressed in the draft GEIS. In formulating proposals for dealing with uranium milling problems to assure

public health and safety and environment protection, the NRC staff has developed a full range of perspectives and facts. It has analyzed the problems from short- and long-term points of view. It has evaluated potential health risks to individuals living in the immediate vicinity of mills, to individuals living in mining and milling regions, to mill workers, and to large populations which can be exposed to radon. Potential impacts on land use, air quality, water quality, water use, biota and soils, and potential socioeconomic effects of milling operations have been assessed. Alternatives for tailings disposal which have been examined range from the past practice of doing virtually nothing to isolate tailings, to utilizing potential advanced treatment methods such as incorporation of tailings in a solid matrix, such as cement or asphalt. The major institutional questions considered by the NRC in developing needed rule changes include: the need for land use controls and site monitoring at tailings disposal sites; methods of providing financial surety so that tailings disposal and site decommissioning are accomplished by the milling operator; and the need for and methods of funding any long-term surveillance which may be necessary at tailings disposal sites. For additional information concerning these issues, the draft GEIS should be reviewed. (It is suggested that readers of the GEIS start with the Summary; the chief bases for these proposed regulations are presented there. In preparing the Summary, the staff made a special effort to refer to specific sections of the text which are pertinent to each issue discussed. This has been done to make it easy for readers to find and consider all of the information that has been developed, so that they can draw their own conclusions about the issues addressed.) The major conclusions reached in the draft GEIS relative to needed rule changes, stated here in broad terms, are:

1. Tailings areas should be located at remote sites to reduce potential population exposures to the maximum extent reasonably achievable.
2. Tailings areas should be located at sites where disruption and dispersion by natural forces are eliminated or reduced to the maximum extent reasonably achievable.
3. The "prime option" for tailings disposal is placement below grade.
4. If tailings are located above ground, stringent siting and design criteria should be adhered to.
5. Sufficient cover should be placed over tailings to reduce radon exhalation



to a calculated value of less than  $2\text{pCi}/\text{m}^2\text{sec}$  above natural background levels.

6. Steps should be taken to reduce seepage of materials into groundwater to the maximum extent reasonably achievable.

7. Final disposition of tailings should be such that ongoing active maintenance is not necessary to preserve isolation.

8. Milling operations should be conducted so that all airborne effluent releases are reduced to as low as is reasonably achievable. Yellowcake drying and packaging operations should cease when effluent control devices are inoperative or not working at their reasonably expected best performance levels.

9. Financial surety arrangements should be established to ensure that sufficient funds are available to cover the costs of decontamination and decommissioning the mill and site and for the reclamation of tailings areas.

10. Sites on which tailings are stored should be controlled through ownership and custody by a government agency unless, in special cases as might occur in deep mine disposal, this is determined unnecessary.

11. Funds should be provided by each mill operator to cover the costs of long-term site surveillance.

12. Construction of a uranium mill or tailings disposal area should not commence until the NRC has completed its final environmental impact statement required by the National Environmental Policy Act (NEPA).

The rule changes proposed herein would also incorporate into the Commission's regulation 10 CFR 40 and 150 the requirements established by the Uranium Mill Tailings Radiation Control Act of 1978 (92 Stat. 3201). This legislation, among other things, establishes a program to regulate mill tailings during uranium or thorium ore processing at active mill operations and after termination of such operations in order to stabilize and control such tailings in a safe and environmentally sound manner and to minimize or eliminate radiation health hazards to the public. In the Commission's view, the legislation also requires that the NRC exercise concurrent jurisdiction over tailings in Agreement States until November 8, 1981. The UMTRCA, among other things, specifies:

1. A revised definition of "byproduct material" to include tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content;

2. Ownership and custody requirements for byproduct material;

3. Provisions for bonds, sureties, or other financial arrangements covering the decontamination, decommissioning, and reclamation of sites, structures, and equipment used in conjunction with byproduct material;

4. Provisions for Agreement State authority under Section 274 of the Atomic Energy Act; and

5. Provisions for NRC grants to States to aid in the development of State regulatory programs.

The UMTRCA further establishes certain responsibilities and authorities whereby the Environmental Protection Agency (EPA) must develop standards of general application for the protection of the public health, safety, and the environment from radiological and nonradiological hazards associated with the processing and with the possession, transfer, and disposal of byproduct material. Such generally applicable standards for nonradiological hazards must provide for the protection of human health and the environment consistent with the standards required under subtitle C of the Solid Waste Disposal Act, as amended. The Commission and any State permitted to exercise authority under § 274b.(2) of the Atomic Energy Act must apply these standards of general application in licensing actions involving byproduct material. In this regard, the Commission notes that the EPA has published (43 FR 58946), for comments, proposed regulations to implement the requirements of the Solid Waste Disposal Act, as amended. The Commission believes that the requirements in the amendments proposed herein, along with applicable requirements in other parts of the Commission's regulations, will be at least comparable to presently published requirements applicable to the possession, transfer, and disposal of similar material regulated by the EPA under the Solid Waste Disposal Act, as amended. Since final regulations have not been adopted by EPA to implement the mandates of the Solid Waste Disposal Act, additional amendments to the Commission's regulations may be required. The Commission intends to follow the progress of the EPA rulemaking action to implement regulations under the Solid Waste Disposal Act. Any final regulations pertaining to byproduct material adopted by the Commission will be comparable, to the maximum extent practicable, to requirements applicable to the possession, transfer, and disposal of similar hazardous material regulation by EPA under the Solid Waste Disposal Act, as amended. To ensure

comparability, concurrence of final regulations will be obtained from the Administrator of EPA as required by the UMTRCA. In addition, the Administrator of EPA will be specifically requested to provide comments and recommendations concerning this matter.

The significant features of the amendments to 10 CFR 40 are:

1. Section 40.4 of Part 40 is being amended (effective immediately) to include the definition of "byproduct material." This amendment, to include uranium and thorium mill tailings as byproduct material as a licensable material in the Commission's regulations, is required by the recently enacted UMTRCA. Discrete above ground wastes from in-situ or solution extraction are covered by this definition, although the underground ore bodies depleted by the extraction process are not covered. While the Commission has considered amending its regulation 10 CFR 30, "Rules of General Applicability to Licensing of Byproduct Material," to specify licensing requirements relative to tailings, the Commission considers it more appropriate to amend 10 CFR 40 since the legislative record of the UMTRCA makes clear that the expanded definition of byproduct material covers only mill tailings or wastes which are exclusively associated with 10 CFR 40 licensing matters.

2. A new § 40.26 is being added (effective immediately) to 10 CFR 40 to establish a temporary general license to authorize the possession and storage of mill tailings or wastes to keep existing milling operations in both Agreement and non-Agreement States from being in technical violation of the Atomic Energy Act of 1954, as amended by UMTRCA. The Commission believes this general license is consistent with the Congressional intent to implement the UMTRCA in a manner designed to minimize unnecessary disruption. As provided in § 40.20 of 10 CFR 40, a general license is effective without the filing of an application or the issuance of licensing documents to particular persons. This general license is applicable only to persons who possess appropriate specific licenses issued by the Commission or Agreement States which authorize uranium milling activities. The authority to possess, use, or own tailings under the general license shall expire concurrently with the expiration or renewal of each NRC or Agreement State specific milling license.

The Commission notes that all of its existing active milling licenses have been reviewed or are being reviewed under the provisions of the National Environmental Policy Act (NEPA). All

NRC licenses presently contain, or will contain, requirements for tailings reclamation, mill and site cleanup, and surety arrangements to cover these costs. For the most part, present requirements and conditions are substantially the same as the requirements being proposed herein, and most milling operators involved in non-Agreement States have already committed themselves to specific plans for decommissioning and tailings disposal meeting these requirements. NRC uranium milling licenses that have been granted under the NEPA process during the period over which the NRC's generic environmental impact statement on uranium milling was being developed were issued with the express condition that approved waste generating processes and mill tailings management practices were subject to revision in accordance with the conclusions of the final generic environmental impact statement and any related rulemaking. In the process of reevaluating approved mill operator plans upon expiration or renewal to meet the requirements of the rule change proposed herein, the NRC staff plans to incorporate into applicable specific licenses the authority to possess and store byproduct material covered by this general license.

Under the provisions of this general license, Agreement State licensees will not be required to obtain a specific NRC license until such time as the licensee's Agreement State specific license expires or is renewed. The Commission notes in this regard that there presently exist Agreement State regulations and requirements governing the control of tailings in Agreement States which appear adequate to protect the public health and safety during the interim period until such licenses expire or are renewed. At such time as each Agreement State license expires or is renewed, it will be necessary at least until November 1, 1981, for the Agreement State licensee to apply for and obtain a specific NRC license covering the possession of byproduct material. The Commission intends to review each application under the NEPA process and impose any necessary requirements as may be necessary to protect the public health and safety. Given that the tailings piles in Agreement States covered by this general license have been in existence for several years, the Commission does not believe that the incremental increase to such piles during the interim time until licenses expire or are renewed will foreclose available alternatives for reducing or avoiding adverse environmental and other effects or result

in irreversible or irretrievable commitments of resources. Thus, the Commission has concluded that an environmental impact statement to support this interim general license is not required. The Commission further notes in this regard that the authority to possess, own, or receive title to tailings now defined as byproduct material under this general license is subject to NRC remedial orders as necessary to protect the public health and safety and to correct any situations where actions might require more immediate Commission attention to insure proper control of tailings.

3. Section 40.31 of Part 40 is being amended by revising § 40.31(a) to cover applications for byproduct material and by adding a new paragraph (g) to require applicants for mill licenses to propose specifications relating to the operation of mill sand disposition of tailings or wastes so as to achieve certain requirements and objectives set forth in a new Appendix A to 10 CFR 40. These requirements and objectives are discussed in detail in the following Item #4.

Since these requirements and objectives deal primarily with presently operating and future milling activities, they do not apply to the remedial action program authorized in Title 1 of the UMTRCA.

4. A new Appendix A entitled, "Criteria Relating to the Operation of Uranium Mills and Disposition of Tailings or Wastes (i.e., byproduct material as defined in Section 11e.(2) of the Atomic Energy Act) Produced by the Extraction or Concentration of Source Material From Ores," is being added to 10 CFR 40. This appendix is divided into four major categories: technical criteria; financial criteria; site and byproduct material ownership; and long-term site surveillance. The technical criteria deal primarily with specifications for siting tailing areas, options for storing tailings below and above ground, seepage controls, minimum cover requirements for tailings at the end of milling operations, preoperational site monitoring requirements, and effluent controls during milling operations. These criteria were basically derived from the GEIS discussed above. The guiding principles in the development of these criteria were that: tailings should be isolated from people and the environment in such a manner to reduce potential exposures to as low as is reasonably achievable; the site where tailings are stored should be returned to conditions reasonably near those of the surrounding environment; and final disposition of tailings should be such

that active maintenance is not necessary to preserve isolation. The bases for these criteria are set forth in detail in the GEIS. The Commission believes that under these criteria tailings can be disposed of at reasonable costs and in such a manner that conditions at disposal sites will be reasonably near those of surrounding environs. Thus, the need for ongoing active care and maintenance programs to redress degradation of the tailings isolation by natural weathering and erosion forces can be essentially eliminated. In that the proposed technical criteria for mill siting and tailings disposal areas preclude location of tailings or milling operations in an area that could be disrupted by natural events such as flooding, these criteria will assure that the requirements of Executive Order 11988 of May 23, 1977, concerning flood plain management are met. Therefore, as well as assuring tailings isolation, floodplains will be protected.

The ownership, surety, and long-term funding criteria delineated in the new Appendix were derived from the GEIS. They are also requirements established under the UMTRCA. The Commission believes that compliance with these criteria will ensure that milling operators, who are responsible for the generation of tailings, will bear the costs of tailing reclamation and long-term site surveillance and that government ownership of tailings and disposal sites will ensure adequate long-term control of the tailings.

With regard to long-term site surveillance, the UMTRCA requires the final disposition of tailings or wastes at milling sites to be such that the need for long-term maintenance and monitoring of such sites after license termination shall be minimized, and to the maximum extent practicable, eliminated. These requirements are delineated in the long-term surveillance criterion set forth in the new Appendix. In order to confirm the integrity of a stabilized tailings system, the Commission proposes to require annual site inspections by site owners (e.g., an appropriate government agency). Depending on the specific conditions of a particular site, as determined during the period following site reclamation and before termination of a mill operator's license, a determination may be made that more frequent inspections or more comprehensive monitoring are required. More specific guidance on long-term surveillance may be issued in the future after more experience has been gained relative to this issue. Results of such inspections would be submitted to the

Commission within 60 days following each inspection.

The criteria in the new Appendix A would become effective following completion of the rulemaking action contemplated herein by the Commission, except that criterion 11 would not become effective until November 8, 1981, under the provisions of the UMTRCA.

5. Paragraphs (b) of § 40.14 and (e) of § 40.32 of 10 CFR 40 are being amended to require the Director of the Commission's Office of Nuclear Material Safety and Safeguards to designate to make a positive finding on an applicant's proposed plans as meeting the requirements and objectives in Appendix A prior to commencement of construction of a mill which produces byproduct material. This finding would be that made in the final environmental impact statement (or other environmental assessment) prepared pursuant to Part 51 of this chapter. These proposed amendments will delete paragraph (b) of § 40.14 so as to preclude exemptions from the requirements of §§ 40.31(f) and 40.32(e) of Part 40 and amend paragraph (e) of § 40.32 so as to require the denial of applications for licenses where construction is started before the appropriate environmental appraisals are completed and documented. The Commission notes in this regard that milling results in the production of large quantities of byproduct material as tailings per year. When construction of a mill commences, nearly irrevocable commitments are made regarding tailings disposal. Given that each mill tailings pile constitutes a low-level waste burial site containing long-lived radioactive materials, the Commission believes that prudence requires that specific methods of tailings disposal, mill decontamination, site reclamation, surety arrangements, and arrangements to allow for transfer of site and tailings ownership be worked out and approved before a license is granted.

The Commission also notes that similar irrevocable and/or irretrievable commitments are involved in the commencement of construction of plants and facilities in which source materials are possessed and used for the production of uranium hexafluoride and commercial waste disposal by land burial. Accordingly, the requirements of the revised paragraphs (b) of § 40.14 and (e) of § 40.32 would apply to these plants and facilities.

The proposed amendments to 10 CFR 30 and 70 also relate to commencement of construction of other types of plants and facilities in which byproduct and special nuclear materials are used and possessed. The Commission also

believes commencement of construction of these plants and facilities may also result in irreversible and irretrievable commitments of resources. Therefore, the Commission believes that it is also desirable and necessary that a final environmental impact statement or assessment be completed and documented before authorizing commencement of construction. Thus, 10 CFR 30.11(b), 10 CFR 30.33(a)(5), 10 CFR 70.14(b) and 10 CFR 70.23(a)(7) are being amended to conform to the foregoing amendments to 10 CFR 40.

The amendments to 10 CFR Part 150 that are to conform to Part 40's new definition of byproduct material and to Part 40's coverage of such byproduct material in Agreement States for the three years following enactment of UMTRCA are immediately effective. These amendments are in accordance with UMTRCA's provisions requiring NRC licensing of tailings in Agreement States for the three year interim. Pursuant to UMTRCA, however, Agreement States may exercise concurrent jurisdiction over tailings and wastes for the three-year interim.

A new proposed § 150.15a is added to enumerate certain authorities reserved in the Commission under UMTRCA. Paragraph (a) is drawn directly from sections 204(f) and 202(a) of UMTRCA. Paragraph (b) is extracted from § 83 of the Atomic Energy Act of 1954, as added by § 202(a) of UMTRCA. The language of UMTRCA and its legislative history indicate that the NRC is to make the determinations under and establish requirements pursuant to § 83, which minimum Federal standards and determinations must, under § 204(e) of the UMTRCA, be met by the Agreement States. New proposed § 150.31 and 150.32 outline requirements in the UMTRCA for Agreement State regulation of tailings or activities that produce such tailings or wastes. The new requirements, which become effective after November 8, 1981, are taken directly from § 274o of the Atomic Energy Act, as added by § 204(e) of the UMTRCA.

The proposed amendments to 10 CFR 170 establish fees for licensing and inspection actions involving only the management of mill tailings and associated wastes. The proposed fees are based on NRC staff experience involving the review of the environmental and public health aspects of uranium milling and related activities.

#### Proposed regulatory changes

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the Uranium Mill Tailings Radiation

Control Act of 1978, and section 553 of title 5 of the United States Code, notice is hereby given that the Commission proposes to amend 10 CFR 30, 40, 70, 150, and 170 as indicated below.

The amendments to §§ 40.1, 40.2a, 40.3, 40.4, 40.26, 150.3, and 150.15, adopted as final rules in a document printed elsewhere in this part, are included below for purposes of clarity and continuity. They are identified in the amendatory language as being effective immediately.

1. Section 40.1 of 10 CFR 40 is amended (effective immediately) by revising paragraphs (a) and (b) as follows:

#### § 40.1 Purpose.

(a) The regulations in this part establish procedures and criteria for the issuance of licenses to receive title to, receive, possess, use, transfer, deliver, or import into or export from the United States source and byproduct materials, as defined in this Part, and establish and provide for the terms and conditions upon which the Commission will issue such licenses. The regulations in this Part do not establish procedures and criteria for the issuance of licenses for materials covered under Title I of the Uranium Mill Tailings Radiation Control Act of 1978 (92 Stat. 3021).

(b) The regulations contained in this part are issued pursuant to the Atomic Energy Act of 1954, as amended (68 Stat. 919), Title II of the Energy Reorganization Act of 1974 (88 Stat. 1242), and Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (42 U.S.C. 7901).

2. § 40.2a of 10 CFR 40 is added (effective immediately) to read as follows:

#### § 40.2a Temporary coverage in Agreement States.

Until November 8, 1981, the regulations in this Part shall govern the Commission's licensing of byproduct material as defined in this Part in Agreement States.

3. § 40.2b of 10 CFR 40 is proposed to be read as follows:

#### § 40.2b Coverage of inactive tailings sites.

(a) Prior to the completion of the remedial action, the Commission will not require a license pursuant to this Part for possession of byproduct material as defined in this Part that is located at a site where milling operations are no longer active, if such site is or is likely to be designated a processing site covered by the remedial action program of title I of the Uranium Mill Tailings Radiation Control Act of 1978. The Commission will exert its

regulatory role in remedial actions exclusively through concurrence and consultation in the execution of the remedial action pursuant to title I of the Uranium Mill Tailings Radiation Control Act of 1978.

(b) The Commission will require a license pursuant to this Part for byproduct material as defined in this Part that is located at a site where milling operations are not longer active, if such site is not and will not be covered by the remedial action program of title I of the Uranium Mill Tailings Radiation Control Act of 1978; provided, however, that the criteria in Appendix A of this Part will be applied to the maximum extent practicable, with consideration given to the unique circumstances of such inactive sites.

4. § 40.3 of 10 CFR 40 is revised (effective immediately) to read as follows:

**§ 40.3 License requirements.**

No person subject to the regulations in this Part shall receive title to, own, receive, possess, use, transfer, deliver, or import into or export from the United States byproduct material as defined in this Part or any source material after removal from its place of deposit in nature, except as authorized in a specific or general license issued by the Commission pursuant to the regulations in this Part.

5. § 40.4 of 10 CFR 40 is revised (effective immediately) by amending paragraphs 40.4(a-1), 40.4(e), and 40.4(1) and adding new paragraphs 40.4(b-1) and 40.4(p).

**§ 40.4 Definitions.**

(a-1) "Byproduct Material" means the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute "byproduct material" within this definition.

(b-1) "Department of Energy" means the United States Department of Energy, or its duly authorized representative.

(e) "Person" means (1) any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, Government agency other than the Commission or the Department of Energy except that the Department of Energy shall be considered a person within the meaning

of the regulations in this Part to the extent that its facilities and activities are subject to the licensing and related regulatory authority of the Commission pursuant to section 202 of the Energy Reorganization Act of 1974 (88 Stat. 1244) \* and the Uranium Mill Tailings Radiation Control Act of 1978 (92 Stat. 21), any State or any political subdivision of, or any political entity within a State, any foreign government or nation, or any political subdivision of any such government or nation, or other entity; and (2) any legal successor, representative, agent or agency of the foregoing.

(1) With the exception of "byproduct material" as defined in Section 11e. of the Act, other terms defined in Section 11 of the Act shall have the same meaning when used in the regulation in this Part.

(p) "Uranium Milling" means any activity that results in the production of byproduct material as defined in this Part.

6. Section 40.11 of 10 CFR 40 is proposed to be amended by changing the word "Administration" to read "Department of Energy" and by adding the words "or the Uranium Mill Tailings Radiation Control Act of 1978" following the words "Energy Reorganization Act of 1974."

7. Section 40.13 of 10 CFR 40 is proposed to be amended by adding the following sentence at the end of Paragraph (a): "The exemption contained in this paragraph does not include byproduct material as defined in this Part."

8. Section 40.14 of 10 CFR 40 is proposed to be amended by deleting paragraph 40.14(b).

\* The Department of Energy facilities and activities identified in section 202 are:

(1) Demonstration Liquid Metal Fast Breeder reactors when operated as part of the power generation facilities of an electric utility system, or when operated in any other manner for the purpose of demonstrating the suitability for commercial application of such a reactor.

(2) Other demonstration nuclear reactors, except those in existence on January 19, 1975, when operated as part of the power generation facilities of an electric utility system, or when operated in any other manner for the purpose of demonstrating the suitability for commercial application of such a reactor.

(3) Facilities used primarily for the receipt and storage of high-level radioactive wastes resulting from licensed activities.

(4) Retrievable Surface Storage Facilities and other facilities authorized for the express purpose of subsequent long-term storage of high-level radioactive waste generated by the Department of Energy, which are not used for, or are part of, research and development activities.

9. Section 40.26 of 10 CFR 40 is added (effective immediately) to read as follows:

**§ 40.26 General license for possession and storage of byproduct material as defined in this Part.**

(a) A general license is hereby issued to receive title to, own, or possess byproduct material as defined in this Part without regard to form or quantity.

(b) The general license in paragraph (a) of this section applies only:

(1) In the case of licensees of the Commission, where activities that result in the production of byproduct material are authorized under a specific license issued by the Commission pursuant to this Part, to byproduct material possessed or stored at an authorized disposal containment area or transported incident to such authorized activity; Provided, that authority to receive title to, own, or possess byproduct material under this general license shall terminate when the specific license for source material expires, is renewed, or is amended to include a specific license for byproduct material as defined in this Part; or

(2) In Agreement States until November 8, 1981, where activities that result in the production of byproduct material are authorized under a specific license issued by the Agreement State on or before May 17, 1979, to byproduct material possessed, or stored at an authorized disposal containment area or transported incident to such authorized activities; Provided, that authority to receive title to, own, or possess byproduct material under such general license shall terminate when such Agreement State license expires or is renewed, whichever first occurs.

(c) The general license in paragraph (a) of this section is subject to:

(1) The provisions of Parts 19, 20, 21, and sections 40.1, 40.2, 40.2a, 40.3, 40.4, 40.5, 40.6, 40.41, 40.46, 40.61, 40.62, 40.63, 40.65, 40.71, and 40.81 of Part 40 of this Chapter; and

(2) The documentation of daily inspections of tailings or waste retention systems and the immediate notification of the appropriate NRC regional office as indicated in Appendix D of 10 CFR Part 20, or the Director, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, of any failure in a tailings or waste retention system which results in a release of tailings or waste into unrestricted areas, and/or of any unusual conditions (conditions not contemplated in the design of the retention system) which if not corrected could lead to failure of the system and result in a release of tailings or waste

into unrestricted areas; and any additional requirements the Commission may by order deem necessary.

10. Section 40.31 of 10 CFR 40 is proposed to be amended by revising § 40.31(a) and adding a new § 40.31(g) as follows:

**§ 40.31 Applications for specific licenses.**

(a)(1) Applications for a specific license for source material or for byproduct material produced in conjunction with the uranium milling activity for which a source material license is sought from the Commission should be filed in quadruplicate on Form NRC-2 "Application for Source Material License," with the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Applications may be filed in person at the Commission's Offices at 1717 H Street, NW., Washington, D.C., or 7920 Norfolk Avenue, Bethesda, Md. Information contained in previous applications, statements, or reports filed with the Commission may be incorporated by reference, provided such references are clear and specific.

(2) Applications for specific licenses for byproduct material as defined in this Part not sought in conjunction with a source material license from the Commission for uranium milling shall be filed with the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Such applications include, until November 8, 1981, applications for specific licenses from the Commission for such byproduct material generated by uranium milling under an Agreement State license issued or renewed after May 17, 1979.

(g) An application for a license to receive title to, own, receive, possess, and use source material for uranium milling or byproduct material, as defined in this Part, shall contain proposed specifications relating to milling operations and the disposition of the byproduct material to achieve the requirements and objectives set forth in Appendix A of this Part.

11. Section 40.32 of 10 CFR 40 is proposed to be amended by revising § 40.32(e) as follows:

**§ 40.32 General requirements for issuance of specific licenses.**

(e) In the case of an application for a license to possess and use source and byproduct material for uranium milling, production of uranium hexafluoride, commercial waste disposal by land burial or for the conduct of any other

activity which the Commission determines will significantly affect the quality of the environment, the Director of Nuclear Material Safety and Safeguards or his designee, before commencement of construction of the plant or facility in which the activity will be conducted, on the basis of information filed and evaluations made pursuant to Part 51 of this chapter, has concluded, after weighing the environmental, economic, technical and other benefits against environmental costs and considering available alternatives, that the action called for is the issuance of the proposed license, with any appropriate conditions to protect environmental values. Commencement of construction prior to such a conclusion shall be grounds for denial of a license to possess and use source and byproduct material in such plant or facility.

12. Appendix A is proposed to be added to Part 40 to read as follows:

**Appendix A to Part 40**

Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes (i.e., byproduct material as defined in Section 11e.(2) of the Atomic Energy Act) Produced by the Extraction or Concentration of Source Material From Ores.

**Introduction.** Every applicant for a license to possess and use source material in conjunction with uranium or thorium milling is required by the provisions of § 40.31(g) to include in a license application proposed specifications relating to milling operations and the disposition of tailings or waste resulting from such milling activities. This appendix establishes technical, financial, ownership, and long-term site surveillance requirements relating to the siting, operation, decontamination, decommissioning, and reclamation of mills and tailings or waste systems and sites at which such mills and systems are located.

**I. Technical Criteria**

*Criterion 1*—Tailings or waste disposal areas shall be located at remote sites so as to reduce potential population exposures and the likelihood of human intrusions to the maximum extent reasonably achievable. To avoid proliferation of small waste disposal sites, byproduct material from in-situ extraction operations, such as residues from solution evaporation or contaminated control processes, and wastes from small remote above ground extraction operations shall preferably be disposed of at existing large mill tailings disposal sites; consideration will be given to the nature of the wastes, such

as their volume and specific activity, and to costs and environmental impacts of transporting the wastes to a large disposal site.

*Criterion 2*—Tailings or waste disposal areas shall be located at sites where disruption and dispersion by natural forces are eliminated or reduced to the maximum extent reasonably achievable. In the selection of mill sites, primary emphasis shall be given to isolation of tailings or wastes, a matter having long-term impacts, as opposed to consideration only of short-term convenience or benefits, such as minimization of transportation or land acquisition costs. These criteria, which preclude location of tailings or mill site in an area which could be disrupted by natural events, such as flooding, assure that the requirements of Executive Order 11988 concerning floodplain management are met.

*Criterion 3*—The "prime option" for disposal of tailings is placement below grade, either in mines or specially excavated pits. The evaluation of alternative sites and disposal methods performed by mill operators in support of their proposed tailings disposal program (provided in applicant environmental reports) shall reflect this. In some instances, below-grade disposal may not be the most environmentally sound approach, such as might be the case if a high quality groundwater formation is relatively close to the surface or not very well isolated by overlying soils and rock. Also, geologic and topographic conditions might make full, below-grade burial impracticable; for example, bedrock may be sufficiently near surface that blasting would be required to excavate a disposal pit at excessive cost, and more suitable alternate sites are not available. In these cases, it must be demonstrated that an above-grade disposal program will provide reasonably equivalent isolation of the tailings from natural erosional forces.

*Criterion 4*—If tailings or wastes are disposed of above ground, the following siting and design criteria shall be adhered to:

(a) Upstream rainfall catchment areas must be <sup>minimized</sup> utilized to decrease the size of the maximum possible flood which could erode or wash out sections of the tailings disposal area.

(b) Topographic features shall provide good wind protection.

(c) Embankment slopes shall be relatively flat after final stabilization to minimize erosion potential and to provide conservative factors of safety assuring long-term stability. The broad objective should be to contour final slopes to grades which are as close as

possible to those which would be provided if tailings were disposed of below grade; this would, for example, lead to slopes of about 10 horizontal to 1 vertical (10h:1v) or less steep. In general, slopes should not be steeper than about 5h:1v. Where steeper slopes are proposed, reasons why a slope less steep than 5h:1v would be impracticable should be provided, and compensating factors and conditions which make such slopes acceptable should be identified.

(d) A full, self-sustaining vegetative cover shall be established or riprap employed to retard wind and water erosion. Special concern shall be given to slopes of embankments.

(e) The impoundment shall not be located near a potentially active fault that could cause a maximum credible earthquake larger than that which the impoundment could reasonably be expected to withstand.

(f) The impoundment, where feasible, should be designed to incorporate features which will promote deposition. For example, design features which promote deposition of sediment suspended in any runoff which flows into the impoundment area might be utilized; the objective of such a design feature would be to enhance the thickness of cover over time.

*Criterion 5*—Steps shall be taken to reduce seepage of toxic materials into groundwater to the maximum extent reasonably achievable. This could be accomplished by lining the bottom of tailings areas and reducing the inventory of liquid in the impoundment by such means as dewatering tailings and/or recycling water from tailings impoundments to the mill. Furthermore, steps shall be taken during stockpiling of ore to minimize penetration of radionuclides into underlying soils; suitable methods include lining and/or compaction of ore storage areas. Also, tailings treatment, such as neutralization to promote immobilization of toxic substances shall be considered. The specific method, or combination of methods, to be used must be worked out on a site-specific basis. While the primary method of protecting groundwater shall be isolation of tailings and tailings solutions, disposal involving contact with groundwater will be considered provided supporting tests and analysis are presented demonstrating that the proposed disposal and treatment methods will preserve quality of groundwater.

*Criterion 6*—Sufficient earth cover, but not less than three meters, shall be placed over tailings or wastes at the end of milling operations to result in a *calculated* reduction in surface exhalation of radon from the tailings or

wastes to less than two picocuries per square meter per second above natural background levels. Direct gamma exposure from the tailings or wastes should be reduced to background levels. Plastic or other synthetic caps should not be used to reduce radon exhalation from the tailings or wastes. Cover material must not include mine waste or rock that contain elevated levels of radium; soils used for cover must be essentially the same, as far as radioactivity is concerned, as that or surrounding soils.

*Criterion 7*—At least one full year prior to any major site construction, a preoperational monitoring program should be conducted to provide complete baseline data on a milling site and its environs prior to development. Throughout the construction and operation phase of the mill, an operational monitoring program should be conducted to demonstrate compliance with applicable standards and regulations; to evaluate performance of control systems and procedures; to evaluate environmental impacts of operation; and to detect potential long-term effects.

*Criterion 8*—Milling operations shall be conducted so that all airborne effluent releases are reduced to as low as is reasonably achievable below the limits in 10 CFR Part 20. The primary means of accomplishing this should be by means of emission controls. Institutional controls, such as extending the site boundary and exclusion area, may be employed to ensure that offsite exposure limits are met, but only after efforts have been taken to control emissions at the source to the maximum extent reasonably achievable. Notwithstanding the existence of individual dose standards, strict control of emissions is necessary to assure that population exposures are reduced to the maximum extent reasonably achievable and to avoid site contamination. The greatest potential sources of offsite radiation exposure (aside from radon exposure) are dusting from dry surfaces or the tailings disposal area not covered by tailings solution and emissions from yellowcake drying and packaging operations. Yellowcake drying and packaging operations should cease when effluent control devices are inoperative or not working at their reasonably expected best performance levels. To control dusting from tailings, that portion not covered by standing liquids should be wetted or chemically stabilized to prevent or minimize blowing and dusting to the maximum extent reasonably achievable. This requirement may be relaxed if tailings

are effectively sheltered from wind, such as may be the case where they are disposed of below grade and the tailings surface is not exposed to wind. Consideration should be given in planning tailings disposal programs to methods which would allow phased covering and reclamation of tailings impoundments since this will help in controlling particulate and radon emissions during operation. To control dusting from diffuse sources, such as tailings and ore pads where automatic controls do not apply, operators should develop written operating procedures specifying the methods of control which will be utilized.

*Criterion 8(A)*—Daily inspections of tailings or waste retention systems shall be conducted and documented. The appropriate NRC regional office as indicated in Appendix D of 10 CFR Part 20, or the Director, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, shall be immediately notified of any failure in a tailings or waste retention system which results in a release of tailings or waste into unrestricted areas, and/or of any unusual conditions (conditions not contemplated in the design of the retention system) which if not corrected could lead to failure of the system and result in a release of tailings or waste into unrestricted areas.

## II. Financial Criteria

*Criterion 9*—Financial surety arrangements shall be established by each mill operator to assure that sufficient funds will be available to carry out the decontamination and decommissioning of the mill and site and for the reclamation of any tailings or waste disposal areas. The amount of funds to be ensured by such surety arrangements shall be based on cost estimates in an approved plan for (1) decontamination and decommissioning of mill buildings and the milling site to levels which would allow unrestricted use of these areas upon decommissioning, and (2) the reclamation of tailings and/or waste disposal areas in accordance with technical criteria delineated in Section I of this Appendix. The licensee shall submit this plan in conjunction with an environmental report that addresses the expected environmental impacts of the milling operation, decommissioning and tailings reclamation, and evaluates alternatives for mitigating these impacts. The surety shall cover the payment of the charge for long-term surveillance required by Criterion 10. In establishing specific surety arrangements, the licensee's cost estimates shall take into

account total capital costs that would be incurred if an independent contractor were hired to perform the decommissioning and reclamation work. In order to avoid unnecessary duplication and expense, the Commission will accept financial sureties that have been consolidated with financial or surety arrangements established to meet requirements of other Federal or State agencies and/or local governing bodies for such decommissioning, decontamination, reclamation, and long-term site surveillance. The licensee's surety mechanism will be reviewed from time to time by the Commission (generally at the time of license renewal) to assure sufficient funds for completion of the reclamation plan if the work had to be performed by the regulatory authority. The amount of surety liability should change in accordance with the predicted cost of future reclamation. Factors affecting reclamation cost estimates include: inflation; increases in the amount of disturbed land; and decommissioning and reclamation that has been performed. This will yield a surety that is at least sufficient at all times to cover the costs of decommissioning and reclamation of the areas that are expected to be disturbed before the next license renewal. The term of the surety mechanism must be open ended. Liability under the surety mechanism shall remain in effect until the reclamation program has been completed and approved. Financial surety arrangements generally acceptable to the Commission are:

- (a) Surety bonds;
- (b) Cash deposits;
- (c) Certificates of deposit;
- (d) Deposits of government securities;
- (e) Letters or lines of credit; and
- (f) Combinations of the above or such other types of arrangements as may be approved by the Commission.

**Criterion 10**—A charge of \$250,000 to cover the costs of long-term surveillance shall be paid by each mill operator to the general treasury of the United States or to an appropriate State agency prior to the termination of a uranium or thorium mill license. If site surveillance requirements at a particular site are determined, on the basis of a site-specific evaluation, to be significantly greater than those specified in Criterion 12, variance in funding requirements may be specified by the Commission. The total charge to cover the costs of long-term surveillance shall be such that, with an assumed 1 percent annual real interest rate, the collected funds will yield interest in an amount sufficient to cover the annual costs of site surveillance. The charge will be

adjusted annually to recognize inflation. The inflation rate to be used is that indicated by the change in the Consumer Price Index published by the U.S. Department of Labor, Bureau of Labor Statistics.

### III. Site and Byproduct Material Ownership

#### Criterion 11—

A. These criteria relating to ownership of tailings and their disposal sites become effective on November 8, 1981, and apply to all licenses terminated, issued, or renewed after that date.

B. Any uranium or thorium milling license or tailings license shall contain such terms and conditions as the Commission determines necessary to assure that, prior to termination of the license, the licensee will comply with ownership requirements of this criterion for sites used for tailings disposal.

C. Title to the byproduct material licensed under this Part and land, including any interests therein (other than land owned by the United States or by a State) which is used for the disposal of any such byproduct material, shall be transferred to the United States or the State in which such land is located, at the option of such State. For licenses issued before November 8, 1981, the NRC will review an applicant's plans to effect arrangements to allow for transfer of site and tailings ownership prior to issuance of a license.

D. If the Commission determines that use of the surface or subsurface estates, or both, of the land transferred to the United States or to a State will not endanger the public health, safety, welfare, or environment, the Commission will permit the use of the surface or subsurface estates, or both, of such land in a manner consistent with the provisions provided in these criteria. If the Commission permits such use of such land, it will provide the person who transferred such land with the right of first refusal with respect to such use of such land.

E. In the case of any uranium or thorium milling license in effect on November 8, 1981, the Commission may require, before the termination of such license, transfer of land and interests therein (including tailings) to the United States or a State in which such land is located at the option of such State as may be necessary to protect the public health, welfare, and the environment from any effects associated with byproduct material defined in this Part. In exercising this requirement, the Commission will take into consideration the status of the ownership of such land and interests therein (including tailings) and the ability of the licensee to transfer

title and custody thereof to the United States or a State. For licenses issued before November 8, 1981, the NRC will review an applicant's plans to effect arrangements to allow for transfer of site and tailings ownership prior to issuance of a license. Subsequent renewals shall not disqualify licensees otherwise eligible for such consideration under this criterion.

F. Material and land transferred to the United States or a State in accordance with this Criterion shall be transferred without cost to the United States or a State other than administrative and legal costs incurred in carrying out such transfer.

G. The provisions of this Part respecting transfer of title and custody to land and tailings and wastes shall not apply in the case of lands held in trust by the United States for any Indian tribe or lands owned by such Indian tribe subject to a restriction against alienation imposed by the United States. In the case of such lands which are used for the disposal of byproduct material, as defined in this Part, the licensee shall enter into arrangements with the Commission as may be appropriate to assure the long-term surveillance of such lands by the United States.

### IV. Long-Term Site Surveillance

**Criterion 12**—The final disposition of tailings or wastes at milling sites should be such that the need for ongoing active maintenance is not necessary to preserve isolation. As a minimum, annual site inspections shall be conducted by site owners where tailings, or wastes are stored to confirm the integrity of the stabilized tailings or waste systems and to determine the need, if any, for maintenance and/or monitoring. Results of the inspection shall be reported to the Commission within 60 days following each inspection. The Commission may require more frequent site inspections if, on the basis of a site-specific evaluation, such a need appears necessary due to the features of a particular tailings or waste disposal system.

13. Section 70.14 of 10 CFR 70 is proposed to be amended by deleting paragraph 70.14(b).

14. Section 70.23 of 10 CFR 70 is proposed to be amended by revising paragraph (a)(7) to read as follows:

#### § 70.23 Requirements for the approval of applications.

(a) \* \* \*

(7) Where the proposed activity is processing and fuel fabrication, scrap recovery, conversion of uranium hexafluoride, commercial waste disposal by land burial, or any other

activity which the Commission determines will significantly affect the quality of the environment, the Director of Nuclear Material Safety and Safeguards or his designee, before commencement of construction of the plant or facility in which the activity will be conducted, on the basis of information filed and evaluations made pursuant to Part 51 of this chapter, has concluded, after weighing the environmental, economic, technical, and other benefits against environmental costs and considering available alternatives, that the action called for is the issuance of the proposed license, with any appropriate conditions to protect environmental values. Commencement of construction prior to such conclusions shall be grounds for denial to possess and use special nuclear material in such plant or facility.

15. Section 30.11 of 10 CFR 30 is proposed to be amended by deleting paragraph 30.11(b).

16. Section 30.33 of 10 CFR 30 is proposed to be amended by revising paragraph (a)(5) to read as follows:

**§ 30.33 General requirements for issuance of specific licenses.**

(a) \* \* \*

(5) In the case of an application for a license to receive and possess byproduct material for commercial waste disposal by land burial or for the conduct of any other activity which the Commission determines will significantly affect the quality of the environment, the Director of Nuclear Material Safety and Safeguards or his designee, before commencement of construction of the plant or facility in which the activity will be conducted, on the basis of information filed and evaluations made pursuant to Part 51 of this chapter, has concluded, after weighing the environmental, economic, technical, and other benefits against environmental costs and considering available alternatives, that the action called for is the issuance of the proposed license, with any appropriate conditions to protect environmental values. Commencement of construction prior to such conclusion shall be grounds for denial of a license to receive and possess byproduct material in such plans or facility.

17. Section 150.3 of 10 CFR 150 is amended (effective immediately) by revising paragraph 150.3(c) to read as follows:

**§ 150.3. Definitions.**

(c) "Byproduct material" means (1) any radioactive material (except special

nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; or (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute "byproduct material" within this definition.

18. Section 150.15 of 10 CFR 150 is amended (effective immediately) by adding a new paragraph (a)(7), to read as follows:

**§ 150.15 Persons not exempt.**

(a) \* \* \*

(7) Until November 8, 1981, the receipt of title to, ownership of, receipt of, possession of, use of, transfer of, delivery of, import or export of the byproduct material as defined in § 150.3(c)(2) of this Part: Provided, however, that during this period any State may exercise any authority under State law respecting such material in the same manner, and to the same extent, as permitted before enactment of the Uranium Mill Tailings Radiation Control Act of 1978. In case of conflict between Federal and State requirements regarding a license, the Federal license requirements shall prevail unless the State requirements are more stringent than the Federal requirements.

19. 10 CFR 150 is proposed to be amended by adding a new § 150.15a to read as follows:

**§ 150.15a Continued Commission authority pertaining to byproduct material.**

(a) Prior to the termination of any Agreement State license for byproduct material as defined in § 150.3(c)(2) of this Part, or for any activity that results in the production of such material, the Commission shall have made a determination that all applicable standards and requirements pertaining to such material have been met.

(b) After November 8, 1981, the Commission reserves the authority to establish minimum standards regarding reclamation, long term surveillance (i.e., continued site observation, monitoring and, in some cases where necessary, maintenance), and ownership of byproduct material as defined in § 150.3(c)(2) of this Part and of land used as a disposal site for such material. Such reserved authority includes:

(1) Authority to establish such terms and conditions as the Commission determines necessary to assure that, prior to termination of any license for

byproduct material as defined in § 150.3(c)(2) of this Part, or for any activity that results in the production of such material, the licensee shall comply with decontamination, decommissioning, and reclamation standards prescribed by the Commission; and with ownership requirements for such materials and its disposal site as the Commission may establish;

(2) The authority to require that prior to termination of any license for byproduct material as defined in § 150.3(c)(2) of this Part or for any activity that results in the production of such material, that title to such byproduct material and its disposal site be transferred to the United States or the State in which such material and land is located, at the option of the State (provided such option is exercised prior to termination of the license);

(3) The authority to permit use of the surface or subsurface estates, or both, of the land transferred to the United States or a State pursuant to paragraph (b)(2) of this section in a manner consistent with the provisions of the Uranium Mill Tailings Radiation Control Act of 1978, provided that the Commission determines that such use would not endanger the public health, safety, welfare, or the environment;

(4) The authority to require, in the case of a license for any activity that produces such byproduct material (which license was in effect on November 8, 1981) transfer of land and material pursuant to paragraph (b)(2), of this section, taking into consideration the status of such material and land and interests therein, and the ability of the licensee to transfer title and custody thereof to the United States or a State;

(5) The authority to require the Secretary of the Department of Energy, other Federal agency, or State, whichever has custody of such property and materials, to undertake such monitoring, maintenance, and emergency measures as are necessary to protect the public health and safety and other actions as the Commission deems necessary to comply with the standards promulgated pursuant to the Uranium Mill Tailings Radiation Control Act of 1978; and

(6) The authority to enter into arrangements as may be appropriate to assure Federal long term surveillance (i.e., continued site observation of such disposal sites on land held in trust by the United States for any Indian tribe or land owned by an Indian tribe and subject to a restriction against alienation imposed by the United States.



20. 10 CFR 150 is proposed to be amended by adding a new § 150.31 to read as follows:

**§ 150.31 Requirements for Agreement State regulation of byproduct material.**

After November 8, 1981, in the licensing and regulation of byproduct material, as defined in § 150.3(c)(2) of this Part, or of any activity which results in the production of such byproduct material, an Agreement State shall require—

- (a) Compliance with requirements established by the Commission pertaining to ownership of such byproduct material and disposal sites for such material; and
- (b) Compliance with standards which shall be adopted by the Agreement State for the protection of the public health, safety, and the environment from hazards associated with such material which are equivalent, to the extent practicable, or more stringent than, standards adopted and enforced by the Commission for the same purpose, including requirements and standards promulgated by the Commission and the Administrator of the Environment Protection Agency pursuant to the Uranium Mill Tailing Radiation Control Act of 1978; and
- (c) Procedures which—
  - (1) In the case of licenses under State law include—
    - (i) An opportunity, after public notice, for written comments and a public hearing, with a transcript,
    - (ii) An opportunity for cross examination, and
    - (iii) A written determination which is based upon findings included in such determination and upon the evidence presented during the public comment period and which is subject to judicial review;
  - (2) In the case of rulemaking, provide an opportunity for public participation through written comments or a public hearing and provide for judicial review of the rule;
  - (3) Require for each license which has a significant impact on the human environment a written analysis (which shall be available to the public before the commencement of any such proceedings) of the impact of such license, including any activities conducted pursuant thereto, on the environment. Such analysis shall include—
    - (i) An assessment of the radiological and nonradiological impacts to the public health of the activities to be conducted pursuant to such license;
    - (ii) An assessment of any impact on any waterway and groundwater resulting from such activities;

(iii) Consideration of alternatives, including alternative sites and engineering methods, to the activities to be conducted pursuant to such license; and

(iv) Consideration of the long term impacts, including decommissioning, decontamination, and reclamation impacts associated with activities to be conducted pursuant to such license, including the management of any byproduct material, as defined in § 150.3(c)(2) of this Part; and

(4) Prohibit any major construction activity with respect to such material prior to complying with the provisions of paragraph (c)(3) of this section.

(d) No Agreement State shall be required under paragraph (c) to conduct proceedings concerning any license or regulation which would duplicate proceedings conducted by the Commission.

21. 10 CFR 150 is proposed to be amended to add § 150.32 to read as follows:

**§ 150.32 Funds for reclamation or maintenance of byproduct material.**

(a) The total amount of funds an Agreement State collects, pursuant to a license for byproduct material as defined in § 150.3(c)(2) of this Part or for any activity that results in the production of such material, for reclamation or long term maintenance and monitoring of such material, shall, after November 8, 1981, be transferred to the United States if title and custody of such material and its disposal site is transferred to the United States upon termination of such license. Such funds include, but are not limited to, sums collected for long term surveillance (i.e., continued site observation, monitoring and, in some cases where necessary, maintenance). Such funds do not, however, include monies held as surety where no default has occurred and the reclamation or other bonded activity has been performed.

(b) If an Agreement State requires such payments for reclamation or long term surveillance (i.e., continued site observation, monitoring and, in some cases where necessary, maintenance), they payments must, after November 8, 1981, be sufficient to ensure compliance with those standards established by the Commission pertaining to bonds, sureties, and financial arrangements to ensure adequate reclamation and long term management of such byproduct material and its disposal site.

22. § 170.2 of 10 CFR 170 is proposed to be revised to read as follows:

**§ 170.2 Scope.**

Except for persons who apply for or hold the permits, licenses, or approvals exempted in § 170.11, the regulations in this part apply to a person who is an applicant for, or holder of, a specific byproduct material license issued pursuant to Part 40 of this chapter, a specific special nuclear material license issued pursuant to Part 70 of this chapter, a specific approval of spent fuel casks and shipping containers issued pursuant to Part 71 of this chapter, a specific request for approval of sealed sources and devices containing byproduct material, source material, or special nuclear material, or a production or utilization facility construction permit and operating license issued pursuant to Part 50 of this chapter, to routine safety and safeguards inspections of a licensed person, to a person who applies for approval of a reference standardized design of a nuclear steam supply system or balance of plant, for review of a facility site prior to the submission of an application for a construction permit, for review of a standardized spent fuel facility design, and for a special project review which the Commission completes or makes whether or not in conjunction with a license application on file or which may be filed.

23. § 170.3 of 10 CFR 170 is proposed to be amended by revising paragraphs 170.3 (a) and (c) to read as follows:

**§ 170.3 Definitions.**

As used in this part:

(a) "Byproduct material" means (1) any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; or (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute "byproduct material" within this definition.

(c) "Materials license" means a byproduct material license issued pursuant to Part 30 of this chapter, or a source or byproduct material license issued pursuant to Part 40 of this chapter, or a special nuclear material license issued pursuant to Part 70 of this chapter.

24. § 170.31 of 10 CFR 170 is proposed to be amended by adding a new category 4.D to read as follows:

**§ 170.31 Schedule of fees for materials licenses and other regulatory services.**

4.D (1) Licenses specifically authorizing the receipt, possession, use, or ownership of tailings or wastes (i.e., byproduct material) produced in conjunction with heap-leaching operations.

Application	10,000
New License*	83,800
Renewal*	93,800
Amendment <sup>1</sup>	
Major*	20,800
Minor*	3,500
Administrative	150

(2) Licenses specifically authorizing the receipt, possession, use, or ownership of tailings or wastes (i.e., byproduct material) produced in conjunction with milling operations.

Production scale activity:	
Application	7,000
New License*	52,900
Research and development scale activity:	
Application	2,000
New License*	14,800
Renewal*	*13,800
Amendment <sup>1</sup>	
Major*	*4,200
Minor*	*750
Administrative	*150

(3) Licenses specifically authorizing the receipt, possession, use, or ownership of tailings or wastes (i.e., byproduct material) produced in conjunction with in situ leaching operations.

Production scale activity:	
Application	2,500
New License*	16,900
Research and development scale activity:	
Application	850
New License*	5,000
Renewal*	*14,800
Amendment <sup>1</sup>	
Major*	*1,400
Minor*	*250
Administrative	*150

25. § 170.32 of 10 CFR 170 is proposed to be amended by adding a new category 4.D to read as follows:

**§ 170.32 Schedule of fees for health and safety, and safeguards inspections for materials licenses.**

4.D. Licenses specifically authorizing the receipt, possession, use, or ownership of tailings or wastes (i.e., byproduct material) produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.

Health and Safety	1,800 One Per Year
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The Commission finds that because the regulations supporting the general license must be effective immediately so as to prevent existing milling operations from being in technical violation of the Atomic Energy Act, good cause exists pursuant to 5 U.S.C. 553 to waive the 30-day comment period, as impracticable

and contrary to the public interest, and make the amendments to 10 CFR 40.1, 40.2a, 40.3, 40.4, 40.26, 150.3, and 150.15 immediately effective. The Commission notes in this regard that informal written comments on this matter were solicited and received from industry, environmental groups, and several States (these comments may be found in the Commission's public document room in a memorandum dated May 9, 1979, from the Executive Legal Director to the Commission entitled "Staff Response to the Commission Request for Further Information Regarding SECY-79-88 'Timing of Certain Requirements of the Uranium Mill Tailings Radiation Control Act of 1978'"). Comments on these amendments are invited, however, and the new regulations remain subject to further modifications in response to such comments.

(Secs. 11e.(2), 81, 83, 84, 161b, 161x, 274; Pub. L. No. 83-703, 68 Stat. 948 et seq. (42 U.S.C. 2014e.(2), 2111, 2113, 2114, 2201b, 2201x, 2021))

Dated at Washington, D.C. this 22nd day of August 1979.

for the Nuclear Regulatory Commission.  
**Samuel J. Chilk,**

*Secretary of the Commission.*  
[FR Doc. 79-26516 Filed 8-23-79; 8:45 am]  
**BILLING CODE 7590-01-M**

NUCLEAR REGULATORY COMMISSION

[10 CFR Parts 40 and 150]

URANIUM MILL TAILINGS LICENSING

AGENCY: Nuclear Regulatory Commission.

ACTION: Final Regulations with request for comments; CORRECTIONS.

SUMMARY: On August 24, 1979, the U.S. Nuclear Regulatory Commission published in the Federal Register (44 FR 50012) final regulations entitled, "Uranium Mill Tailings Licensing," along with a request for comments. Inadvertent and typographical errors in the published regulations are identified and corrected herein.

ADDRESSES: Written comments should be submitted to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch. Copies of comments on these amendments may be examined in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C.

FOR FURTHER INFORMATION CONTACT: Don F. Harmon, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (phone 301/443-5910) or Hubert J. Miller, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (phone 301/427-4103).

SUPPLEMENTARY INFORMATION: On August 24, 1979, the U.S. Nuclear Regulatory Commission published in the Federal Register (44 FR 50012) final regulations

entitled, "Uranium Mill Tailings Licensing," along with a request for comments. Inadvertent and typographical errors in the published regulations are identified and corrected as follows.

1. Page 50012, column 3, line 52 is corrected to read, "until November 8, 1981, for the".
2. Page 50013, column 1, line 4 is corrected to read, "commitments of resources. The".
3. Page 50013, column 2, line 5 is corrected to read, "make the amendments to 10 CFR §§ 40.1".
4. Page 50013, column 2, penultimate line is corrected to read, "Part are issued pursuant to the Atomic".
5. Page 50014, column 1, lines 2 and 3 are corrected to read, "Radiation Control Act of 1978 (92 Stat. 3021), any State or any political".
6. Page 50014, column 1, line 11 is corrected to read, "(1) With the exception of "byproduct."
7. Page 50014, column 1, line 15 is corrected to read, "meaning when used in the regulations in".
8. Page 50014, column 1, line 19 is corrected to read, "byproduct material as defined in this".
9. Page 50014, column 2, § 150.3(c) is corrected to read, "§ 150.3(c) "Byproduct material" means (1) any radioactive material (except special

nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; or (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute "byproduct material" within this definition."

(Secs. 11.e(2), 81, 83, 84, 161b, 161o, 174; Pub. L. No. 83-703, 68 Stat. 948 et seq. (42 U.S.C. 2014e.(2), 2111, 2113, 2114, 2201b, 2021)).

Dated at Washington, D.C., this \_\_\_\_\_ day of \_\_\_\_\_.

For the Nuclear Regulatory Commission.

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Samuel J. Chilk  
Secretary of the Commission

NUCLEAR REGULATORY COMMISSION  
[10 CFR Parts 30, 40, 70, 150, and 170]  
CRITERIA RELATING TO URANIUM MILL TAILINGS  
AND CONSTRUCTION OF MAJOR PLANTS

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Proposed rules; CORRECTIONS.

SUMMARY: On August 24, 1979, the U.S. Nuclear Regulatory Commission published for comments in the Federal Register (44 FR 50015) proposed amendments to its regulations 10 CFR Parts 30, 40, 70, 150, and 170 entitled, "Criteria Relating to Uranium Mill Tailings and Construction of Major Plants." Inadvertent and typographical errors in the published proposed amendments are identified and corrected herein.

ADDRESSES: Written comments should be submitted to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch. Copies of comments on the proposed amendment may be examined in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C.

FOR FURTHER INFORMATION CONTACT: Don F. Harmon, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (phone 301/443-5910) or Hubert J. Miller, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (phone 301/427-4103).

SUPPLEMENTARY INFORMATION: On August 24, 1979, the U.S. Nuclear Regulatory Commission published for comments in the Federal Register (44 FR 50015) proposed amendments to its regulations 10 CFR Parts 30, 40, 70, 150, and 170 entitled, "Criteria Relating to Uranium Mill Tailings and Construction of Major Plants." Inadvertent and typographical errors in the published proposed amendments are identified and corrected as follows.

1. Page 50015, column 1, line 16 is corrected to read, "amendments to Parts 40 and 150 are".

2. Page 50015, column 1, line 62 is corrected to read, "proposed amendments may be examined".

3. Page 50015, column 2, line 50 is corrected to read, "to the Commission's regulations to".

4. Page 50016, column 1, line 45 is corrected to read, "Act of 1978 (92 Stat. 3021). This".

5. Page 50016, column 2, line 66 is corrected to read, "of similar hazardous material regulated".

6. Page 50016, column 3, line 32 is corrected to read, "UMTRCA makes it clear that the".

7. Page 50017, column 1, line 50 is corrected to read, "until November 8, 1981, for the".

8. Page 50017, column 2, line 23 is corrected to read, "operation of mills and disposition of".
9. Page 50017, column 2, line 57 is corrected to read, "These criteria were basically derived".
10. Page 50017, column 2, penultimate line is corrected to read, "surrounding environment; and final".
11. Page 50018, column 2, line 7 is corrected to read, "environmental impact statement or".
12. Page 50018, column 3, line 41 is corrected to read, "(92 Stat. 3021)".
13. Page 50018, column 3, line 53 is corrected to read, "be added to read as follows:".
14. Page 50019, column 1, line 11 is corrected to read, "milling operations are no longer active,".
15. Page 50019, column 1, line 38 is corrected to read, "Paragraphs 40.4(a-1), 40.4(e), and 40.4(1)".
16. Page 50019, column 2, line 9 is corrected to read, "3021), any State or any political".
17. Page 50019, column 2, line 17 is corrected to read, "(1) With the exception of "byproduct".



18. Page 50019, column 2, line 21 is corrected to read, "meaning when used in the regulations in".

19. Page 50019, column 2, line 32 is corrected to read, "Tailings Radiation Control Act of 1978".

20. Page 50021, column 1, last line is corrected to read, "exhalation of radon from the tailings or".

21. Page 50021, column 2, line 7 is corrected to read, "not be used to reduce radon exhalation".

22. Page 50023, column 3, line 57 is corrected to read, "Mill Tailings Radiation Control Act of".

23. Page 50023, column 3, line 62 is corrected to read, "(i.e., continued site observation, monitoring and, in some cases where necessary, maintenance) of such".

24. Page 50024, column 2, line 56 is corrected to read, "the payments must, after November 8,".

25. Page 50024, column 3, line 8 is corrected to read, "pursuant to Parts 30 and 32-35 of this chapter, a specific source or byproduct material license issued pursuant to Part 40 of this chapter, a".

26. Page 50025, column 1, line 9 is corrected to read, "produced in conjunction with milling".

27. Page 50025, column 1, line 21 is corrected to read, "produced in conjunction with heap-leaching".

28. Page 50025, column 1, line 32 is corrected to read, "Minor...<sup>6</sup>760".

29. Page 50025, column 1, line 45 is corrected to read, "Renewal<sup>4</sup>...<sup>6</sup>4,800".

30. Page 50025, column 1, line 47 is corrected to read, "Major<sup>4</sup>...<sup>6</sup>1,200".

31. Page 50025, column 1, line 48 is corrected to read, "Minor...<sup>6</sup>250".

32. Page 50025, column 2, line 2 is corrected to read, "make the amendments to 10 CFR §§ 40.1,".

(Secs. 11e.(2), 81, 83, 84, 161b, 161o, 161x, 274; Pub. L. No. 83-703, 68 Stat. 948 et seq. (42 U.S.C. 2014e.(2), 2111, 2113, 2114, 2201b, 2201x, 2021))

Dated at Washington, D.C., this \_\_\_\_\_ day of \_\_\_\_\_.

For the Nuclear Regulatory Commission.

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Samuel J. Chilk  
Secretary of the Commission

**NUCLEAR REGULATORY  
COMMISSION**

[Project M-25]

**Notice of Extension of Comment  
Period for the Draft Generic  
Environmental Impact Statement**

**Uranium Milling; (GEIS) and Notice of  
Public Hearings on Draft GEIS and  
Associated Proposed Regulation  
Changes**

As stated in the *Federal Register* Notice announcing the availability of the Draft Generic Environmental Impact Statement (GEIS) on Uranium Milling (44 FR 24963), regulation changes have been developed which incorporate conclusions of the Draft GEIS and implement provisions of the "Uranium Mill Tailings Radiation Control Act of 1978." These regulation changes were formally proposed in the *Federal Register* on August 24, 1979, (44 FR 50012). Since the bases for many of the regulation changes are developed in the Draft GEIS, it is essential that they be considered together. Therefore, the comment period on the Draft GEIS is being extended an additional thirty (30) days (in addition to the previous sixty (60) day extension) from September 24, 1979, to October 24, 1979, in order to provide adequate time for review.

Further, notice is hereby given that the Commission will hold two informal public hearings on the GEIS on Uranium Milling and associated proposed regulation changes. The hearings will be held on October 1-2, 1979 at the Holiday Inn in Denver, Colorado and on October 18-19, 1979, at the Convention Center in Albuquerque, New Mexico. Persons wishing to attend these hearings should arrange for their own accommodations.

The purpose of the hearings will be to provide interested persons an

opportunity to participate in rulemaking through oral comments. The amount of time allowed for oral remarks will be determined by prehearing response; however, it is anticipated that individuals will be allowed approximately fifteen minutes. The hearing panel, consisting of NRC staff members responsible for preparing the draft GEIS and proposed regulation changes, as well as a representative from the State (in which the hearing is being held), will ask clarifying questions, of commenters, and NRC staff members will answer general questions about the draft GEIS and proposed regulation changes to the extent that they can at the time. Persons interested in presenting comments at either of the two informal hearings should notify Mrs. Betty Fisher in care of the Director, Division of Waste Management or at (301) 427-4103 by September 14, 1979. It would be helpful if written versions of comments to be presented orally are made available prior to or at the time of the hearings. Opportunity to speak will be given to those persons who do not provide advance notification of their intent to comment, if time is available. However, the hearing chairman will retain the right to refuse the floor to anyone who does not address the draft GEIS or proposed regulation changes. Any further procedural rules needed for the proper conduct of the hearing will be announced by the hearing Chairman. The hearings will be recorded and the transcripts will be placed in the Public Document Room as part of the official record.

The hearings will run from 8:30 a.m. to 5:30 p.m. each day. Evening sessions will be held if it is determined that this is necessary in view of pre-hearing response. Both hearings will follow the same simple agenda:

I. Registration.  
II. Introduction and Opening Remarks by Chairman and members of hearing panel. Remarks by Chairman will consist of brief summarization of the scope of the Draft GEIS and proposed regulation changes as well as a review of the schedule for issuing the final GEIS and regulation changes.

III. The remainder of the two days will be available for interested persons to make comments on the Draft GEIS and proposed regulation changes.

Written comments in furtherance of oral remarks will be accepted by the hearing chairman at the time of the hearing or may be sent by October 24, 1979, to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Waste Management.

Dated At Silver Spring, Maryland, this 29th day of August, 1979.

For the Nuclear Regulatory Commission,  
**Ross A. Scarano,**  
*Chief, Uranium Recovery Licensing Branch,  
Division of Waste Management.*

[FR Doc. 79-27771 Filed 9-5-79; 9:45 am]  
BILLING CODE 7590-01-M

MAY 18 1977

BRANCH POSITION - URANIUM MILL TAILINGS MANAGEMENT  
Fuel Processing and Fabrication BranchBackground

A major expansion in the uranium industry is taking place. Many times more uranium will be extracted in the upcoming decades than has been extracted so far. This requires that the NRC examine very closely the past problem areas encountered in the uranium industry and make sure they are not compounded on an even larger scale.

The first major portion of the industry within the licensing jurisdiction of the NRC is uranium milling. The major problem encountered in past milling operations is the management of tailings generated by the milling process. Although the concentration of radioactivity in the tailings is relatively low, control measures are necessary because of the large quantities involved and because of the long half-life of the parent radionuclides that are present.

The management of mill tailings has received increasing attention and interest in recent years from involved federal and state agencies and from environmental conservation groups. This interest has resulted from studies carried out during the last decade which have indicated that uranium mill tailings, if not properly managed and controlled, could present a potential public health hazard. The most vivid example, of course, is the situation that occurred in Grand Junction. The remedial actions determined necessary to correct the misuse of tailings in the construction of homes, schools, and other public structures are continuing at substantial cost to the Federal Government and the State of Colorado.

In addition, final technical resolution and financial responsibility for the disposition of tailings at the 22 "inactive" sites being evaluated by ERDA will further increase public, state, and local as well as congressional concern with prevention of similar problems in the future.

It is incumbent on NRC and the uranium industry to assure that current and future licensed milling operations do not result in similar situations.

Towards this end, the NRC staff has developed performance objectives for an acceptable tailings management program based on the most up-to-date technology available today.

Position

The staff is of the opinion that an acceptable tailings management program will vary depending on site or region specific parameters, such as geology, hydrology, and meteorology. Viable methods of tailings

management for a specific mill location may include classic impoundment behind a dam, deep mine burial, open pit mine burial, specially excavated pit burial, or even elimination of radioactive waste by process variations.

Considering the many variables involved, the staff will use the following performance objectives to determine the adequacy of proposed site specific tailings management programs.

#### Siting and Design

1. Locate the tailings isolation area remote from people such that population exposures would be reduced to the maximum extent reasonably achievable.
2. Locate the tailings isolation area such that disruption and dispersion by natural forces is eliminated or reduced to the maximum extent reasonably achievable.
3. Design the isolation area such that seepage of toxic materials into the groundwater system would be eliminated or reduced to the maximum extent reasonably achievable.

#### During Operations

4. Eliminate the blowing of tailings to unrestricted areas during normal operating conditions.

#### Post Reclamation

5. Reduce direct gamma radiation from the impoundment area to essentially background.
6. Reduce the radon emanation rate from the impoundment area to about twice the emanation rate in the surrounding environs.
7. Eliminate the need for an ongoing monitoring and maintenance program following successful reclamation.
8. Provide surety arrangements to assure that sufficient funds are available to complete the full reclamation plan.

#### Implementation

All objectives will be considered and satisfied during the review of proposed tailings management programs for new milling operations.

Current licensees' tailings management programs will be reviewed to determine the best way to apply objectives 4 through 8 to the extent practicable.

During the course of license renewal reviews, the locations of existing tailings areas will be reviewed considering objectives 1 through 3 to determine if sufficient cause exists to require an alternate disposal location for tailings generated by future milling operations and the relocation of existing tailings at the time of mill decommissioning.