

PDR M-25



OFFICE OF THE GOVERNOR

WILLIAM P. CLEMENTS, JR.
GOVERNOR

July 2, 1979



Mr. Ross A. Scarano, Section Leader
New Facilities Section
Division of Waste Management
Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Scarano:

The draft generic environmental impact statement on uranium milling pertaining to Uranium Milling has been reviewed by the Budget and Planning Office and interested State agencies. The comments of the Parks and Wildlife Department, General Land Office, Air Control Board, Department of Water Resources, and the Railroad Commission are enclosed for your information and use.

The Budget and Planning Office appreciates the opportunity to review this document. If we can be of any further assistance during the application process, please do not hesitate to call.

Sincerely,

Donald E. Harley

Donald E. Harley, Manager
Economic and Natural Resources
Budget and Planning Office

Enclosures: Comments by -
Texas Parks and Wildlife Department
General Land Office
Texas Air Control Board
Department of Water Resources
Texas Railroad Commission

DEH:jl

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FILE EXAMPLE

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JUN 5 1979

Budget/Planning

TO: Ward Goessling , Budget and Planning Office Contact

Railroad Commission

Date Sent: 5/1/79

Date Due: 6/10/79

SUBJECT: Draft Generic Environmental Impact Statement on Uranium Milling

Refer: EIS 9-004-013

We have reviewed the cited document and our comments as to the adequacy of treatment of environmental effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:	X	
2. Additional alternatives which should be considered:	X	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	X	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	X	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:	X	
6. We identify issues which require further discussion or resolution:	X	

This agency concurs with the implementation of this project.

This agency does not wish to comment on the subject document because:

POOR ORIGINAL

Enclosure(s)

Name and Title of Reviewing Official

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TEXAS AIR CONTROL BOARD JUN 11 1979

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June 8, 1979

Mr. Ward C. Goessling, Jr.
Economic and Natural Resources
Budget and Planning Office
Office of the Governor
411 West 13th Street
Austin, Texas 78701

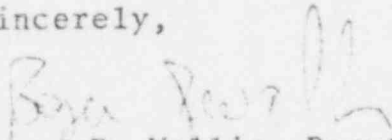
Subject: Draft Generic Environmental Impact Statement
on Uranium Milling. EIS 9-004-017

Dear Mr. Goessling:

Our review is restricted to the adequacy of this document's treatment of nonradioactive air contaminant emissions associated with uranium milling. This Environmental Impact Statement is adequate in its treatment of these emissions.

Thank you for the opportunity to review this document. If we can be of further assistance, please contact me.

Sincerely,


Roger R. Wallis, Deputy Director
Standards and Regulations Program

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13104

TO: Ward Goessling , Budget and Planning Office Contact

FROM: General Land Office Date Sent: 5/1/79

SUBJECT: Draft Generic Environmental Impact Statement on Uranium Milling Date Due: 6/10/79

Refer: EIS 9-004-018

We have reviewed the cited document and our comments as to the adequacy of treatment of environmental effects of concern are shown below:

	Check (X) for each item	
	None	Comment enclosed
1. Additional specific effects which should be assessed:	✓	
2. Additional alternatives which should be considered:	✓	
3. Better or more appropriate measures and standards which should be used to evaluate environmental effects:	✓	
4. Additional control measures which should be applied to reduce adverse environmental effects or to avoid or minimize the irreversible or irretrievable commitment of resources:	✓	
5. Our assessment of how serious the environmental damage from this project might be, using the best alternative and control measures:	✓	
6. We identify issues which require further discussion or resolution:	✓	

This agency concurs with the implementation of this project.

This agency does not wish to comment on the subject document because:

POOR ORIGINAL

A. J. Bishop 561 185

Enclosure(s)

Name and Title of Reviewing Official

Approved: *Mike Hightower*
 Mike Hightower
 Program Manager/Director

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MAY 16 1979

Budget/Planning

May 15, 1979

Mr. Donald E. Harley, Manager
Economic and Natural Resources Section
Governor's Budget and Planning Office
Executive Office Building
411 West 13th Street
Austin, Texas 78701

Re: Draft Generic Environmental Impact Statement on Uranium Milling
(EIS 9-004-017)

Dear Mr. Harley:

This agency has reviewed the referenced document and offers no comments.

If I can be of further assistance, please contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Charles D. Travis".

CHARLES D. TRAVIS
Executive Director

CDT:MM:lmw

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TEXAS DEPARTMENT OF WATER RESOURCES

1700 N. Congress Avenue
Austin, Texas

JUN 15 1979

Budget/Planning

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Executive Director

June 13, 1979

TEXAS WATER COMMISSION

Felix McDonald, Chairman
Dorsey B. Hardeman
Joe R. Carroll

Mr. Paul T. Wrotenbery, Director
Governor's Budget & Planning Office
Executive Office Building
411 West 13th Street
Austin, Texas 78701

Re: U.S. Nuclear Regulatory Commission (NRC) -- Draft Generic Environmental Impact Statement (GEIS) on Uranium Milling (NUREG-0511, April 1979, Volumes I (Summary & Text) and II (Appendices). [State Reference: EIS-9-004-017]

Dear Mr. Wrotenbery:

The Texas Department of Water Resources (TDWR) staff has reviewed the referenced document which evaluates the generic technological and environmental impacts of controlling and disposing the large volume of wastes (tailings) produced by uranium milling operations in the United States. Uranium milling tailings emit a radioactive gas, Radon-222, formed from the decay of Radium-226, having a half-life of 1,622 years. Radium-226 is formed from Thorium-230, which has a half-life of 8×10^4 years. The radon production rate at the tailings pile site increases each day of mill operations, and can be expected to travel airborne for long distances and seriously endanger the health of large populations. The gravity of this problem is described in the "Report to the President by the Interagency Review Group on Nuclear Waste Management," March 1979, as follows:

"The relative magnitude of actinide elements in mill tailings, HLW (high level wastes) and TRU (transuranic wastes), per unit of energy generated suggests that these waste streams may present problems of comparable magnitude for the very long term, that is beyond a period of a thousand years. By virtue of their presence at the surface, the actinide elements in mill tailings may constitute a greater potential problem than those in deeply-buried HLW and TRU wastes. Thus, disposal of these tailings must be managed as carefully as that for the HLW and TRU wastes." (Presidential IRG Report, March 1979, page H-7; emphasis added.)

While the GEIS notes that the need for radiological controls exists throughout the entire milling process, the immediate concern is on short and long-term

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threat of radioactive mill tailings to groundwater (GEIS Vol. I: Sections 6.2.4, 6.3.4.2, 6.5.3, 9.3.4, & 9.3.5; and Vol. II: Appendix E). The GEIS analyzes alternative disposal techniques designed to control and contain emissions and to mitigate the potential adverse impacts of uranium milling (GEIS, Vol. I: Chapter 8).

NRC places the following limitations on the referenced GEIS, indicating ultimate dependence on site-specific analyses and studies for specific solutions to the tailings problem:

"...given the highly site-specific nature of environmental impacts that can occur... each licensing action calls for a thorough environmental assessment. The staff considers that this generic statement and associated rules that will be proposed can be no substitute for documented environmental assessments performed for each mill and mill tailings disposal site." (GEIS, Vol. I, p. 2; underlining added for emphasis.)

.....
"The impacts of uranium milling operations on groundwater are generally site specific (because of regional and local variations in geology and hydrology) and thus are difficult to discuss on a generic basis." (GEIS, Vol. I, Section 6.2.4.2, page 6-7).

TDWR offers the following staff review comments:

1. GEIS, Vol. I, page 2, last paragraph; and Section 13.2.2, page 13-2. TDWR notes that NRC has limited the GEIS to conventional uranium milling, in which ore is crushed, ground, and leached in a surface facility at a mining site or a regional mill to which excavated uranium ore is transported from a strip or pit mine. The GEIS explicitly excludes detailed consideration of nonconventional uranium recovery processes such as: in-situ extraction of ore bodies, or leaching of uranium-rich tailings piles, and extraction of uranium from mine water, and wet-process phosphoric acid. NRC explains that those nonconventional processes are not evaluated because "they produce relatively small quantities of uranium," and that the "impacts from in-situ extraction are almost exclusively related to groundwater considerations and are, therefore, highly site-specific." (GEIS, Vol. I, p. 2.)

TDWR has some concern regarding this exclusion of tailings generated from in-situ extraction. Also, we believe that this exclusion may be contrary to the intended scope of analysis required under the Uranium Mill Tailings Radiation Control Act of 1978 (P.L. 95-604). The said Act does not exclude tailings from in-situ extraction operations in the definition of the term "byproduct material" -- a broad, newly-created category of controllable, licensable material. Specifically,

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Section 201e of P.L. 95-604 (GEIS, Vol. II, p. Q-8) indicates as follows:

"e. The term 'byproduct material' means (1) any radioactive material... yielded... incident to the process of producing... nuclear material and (2) the tailings or wastes produced by the extraction... of uranium from any ore..." (Emphasis added.)

Due to the technical and economic feasibility, general acceptance, and relative frequency of the in-situ uranium leaching and extraction method in Texas, TDWR believes that it would be desirable to have this "non-conventional" process analyzed generically in the referenced GEIS. Attention is invited to GEIS, Vol. I, Table 3.4, page 3-5, indicating that five of seven uranium ore mining and processing sites in Texas in 1978, were in-situ mining sites.

2. GEIS, Vol. I, Table 3.5, page 3-7; Vol. II, page R-1. TDWR believes that while the magnitude of Texas-based uranium milling operations is relatively small, compared to operations in other western states, the potential conflicts between Federal and state regulatory concepts and procedures could be significant, insofar as Texas is concerned. This overall evaluation is based on our consideration of the following factors:
 - a. Table 3.5, page 3-7, indicates that as of January 1, 1978, the Texas Coastal Plain region, (one of the six major National Uranium Resource Evaluation Regions (NURE) produced 10,000 short tons (ST), or 3.2 percent of the total uranium production of the six major NUREs, and contained an estimated 6.25 percent of the known uranium reserves, and 13.5 percent of the probable (potential) uranium reserves.
 - b. Currently there are four mills in the Texas Coastal NURE: (1) Exxon's Ray Point mill: presently inactive; (2) Solution Engineering Company's Fall City mill: currently permitted by TDWR for in-situ mining and stabilization of tailings; (3) Conquista's Fall City Mill and Chevron's Panna Maria mill: currently permitted by the Texas Railroad Commission. TDWR estimates that two additional mills might be constructed in the future.
 - c. TDWR estimates that only relatively minor additional TDWR effort would be required to issue permits, if a policy for formal issuance of permits for tailings ponds were adopted, based on current State permitting procedures. However potential difficulties are expected to arise from the fact that under P.L. 95-604 (Section 204e), states are required to adopt and implement tailings regulations based on standards that are equivalent to or more stringent than standards adopted and enforced by the NRC and the Environmental Protection Agency. This requirement could

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present substantial difficulty at this time. P.L. 95-604 represents a departure from former requirement that state regulatory programs merely be "compatible" with those of NRC. P.L. 95-604 contains a new Congressional intent that a uniform, National approach must now be adopted in order to solve the tailings waste disposal problem. (GEIS, Vol. I, Section 13.3.2, page 13-3; and, Vol. II, pages Q-8, -9, & -10).

- d. Difficulties arise from the fact that P.L. 95-604, requires state or federal custody of the land containing mill tailings; financial surety; and centralized responsibility for compliance with and enforcement of comprehensive federal and state standards for the protection of public health, safety, and the environment. These comprehensive interrelated multivariate requirements and tasks are currently beyond the authority which any single State of Texas agency now has, and/or cut across the statutory jurisdictions and responsibilities of several State agencies (i.e., Texas Department of Water Resources, Texas Railroad Commission, Texas Department of Health, Texas Air Control Board). Therefore, adjustment and coordination of policies, rules, regulations, and legislation would be needed in order to fully comply with P.L. 95-604. Specifically, (1) TDWR currently does not have the statutory authority to acquire ownership of and maintain tailings sites, as required by P.L. 95-604, Section 202; (2) existing State statutes and regulations do provide a substantial legal basis to carry out the extensive mandates of P.L. 95-604, for protection of the environment, including the quality of surface and groundwaters, and related land resources; (3) waste discharge permits currently are issued by the State of Texas for surface discharges from mines, but there is no formal permitting by TDWR of tailing ponds at mills other than on an advisory basis to the Texas Railroad Commission; (4) where tailings ponds are built with dam-type structures, TDWR may become involved if it is reasonably evident to do so pursuant to our limited statutory responsibilities relative to the issuance of water rights permits for the diversion and use of unappropriated State water (TDWR Rules 156.02.05.001, et seq.) or pursuant to our responsibilities relative to the approval and inspection of dams (TDWR Rules 156.05.05.001, et seq.).
- e. The present State of Texas laws, regulations, and procedures appear to provide a reasonable and basic body of regulatory safeguards, and authority, pending the development of more extensive Federal/State agreements to govern the detailed implementation of P.L. 95-604. Specifically, with the exception of emissions to the atmosphere and radioactive wastes, the TDWR already is assigned regulatory jurisdiction for all industrial

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waste management activities in accordance with the Texas Water Code, the Disposal Well Act, and the Solid Waste Disposal Act. For example, under Section 4e(5) of the Texas Solid Waste Disposal Act, TDWR has basic authority (as there is under the Texas Surface Mining and Reclamation Act) to require mill tailings disposal area permittees to execute and furnish performance or surety bonds, or give other financial assurance mechanisms conditioned on the permittee's satisfactorily managing, controlling, and decommissioning tailings disposal sites and related milling facilities.

- f. The potential TDWR costs to implement and enforce the full requirements of P.L. 95-604, and the associated future, revised NRC implementing regulations, 10 CFR 20, and 40 CFR 190 (GEIS, Vol. I, page 15-1) could be very substantial due to the anticipated long-term, hazardous conditions of tailing sites. The current prospects of executing the intensive new P.L. 95-604 requirements by increased State funding is considered doubtful at this time. (GEIS, Vol. I, Chapter 15.)

3. GEIS, Vol. I, Section 8.4.1.4. The GEIS states:

"Most of the alternative programs conservatively provide ground-water protection by isolating tailings and tailings solutions through the use of bottom liners and location above groundwater formations. It may be possible to treat tailings to allow contacting sands or sands and slimes, with groundwater, or to eliminate liners altogether. Proposals involving this would have to be evaluated on a case-by-case basis." (Emphasis added.)

TDWR believes that the generic discussion of water-related matters in Chapters 6, 8, and 9, typified by the above quotation, should be made more explicit regarding the more essential geohydrologic conditions governing uranium mill tailings disposal site criteria. TDWR believes that the GEIS should emphasize the necessity of determining the range of minimum distances required between the bottom of the bottom-liner system (or the natural in-place soil barrier) and the historical high groundwater table. In addition, the GEIS should emphasize that floodplains, shorelines and groundwater recharge areas should be avoided. Further, there should be no hydraulic connection between the tailings site and standing or flowing surface water. Finally, the tailings site should have monitoring wells and leachate detection and collection systems as a "back-up" measure to help ensure that the liner system is not breached and penetrated by liquids.

TDWR notes that basically two general methods have been proposed for future containment of the tailings at old and new mill sites. The

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first involves covering the tailings with one of a variety of materials to reduce erosion and radon release. The second involves placement of the tailings below ground level in mines or in open pits.

In this regard, TDWR believes that the following relevant conclusions, relative to alternatives in the Presidential Interagency Review Group's Report of March 1979 (page 81) should be incorporated in the GEIS:


"...considerable R&D remains to be done to evaluate these measures. Moreover, the long half-life of thorium-230 dictates that R&D on tailings stabilization must consider the effects of geologic processes operating over geologic time upon the transport of radon and thorium through the biosphere and hydrosphere surrounding the tailings. The ultimate objective should be to dispose of the tailings in such a manner that emissions of radon and radium are reduced to or as near background levels as can be reasonably achieved, and that no active institutional care be required to keep the tailings isolated from people following disposal. The risk assessment methodology being used to evaluate the migration of radionuclides from proposed HLW and TRU waste repositories should also be used to estimate migration from uranium mill tailings." (Emphasis added.)

4. GEIS, Vol. I, Sections 13.5.1 and 13.5.2. TDWR believes that in addition to the relevant pre-existing authorities contained in the cited Federal statutes (i.e., the Atomic Energy Act, the Resource Conservation and Recovery Act, the Clean Air Act, and the Federal Water Quality Act), mention also should be made of the applicability of authority contained in the Safe Drinking Water Act, and the Toxic Substances Control Act.

The close interrelation of the entire body of the cited State and Federal laws and regulations in the water-related areas constitute a pre-existing broad base of coordination and consistency between State and Federal planning, development, and regulatory efforts. This fact should be emphasized.

TDWR appreciated the opportunity to review the referenced document. Please advise if we can be of further assistance.

Sincerely,


Harvey Davis
Executive Director

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