



U.S. Department of Energy

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Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
Mail Stop T7J9
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: (GCAP) Subpart B, Ground Water Compliance Modification to the Remedial Action Plan of the Inactive Uranium Mill Tailings Site at Falls City, Texas

Dear Mr. Holonich:

Enclosed is the proposed modification to the *Remedial Action Plan (RAP) and Site Design for Stabilization of the Inactive Uranium Mill Tailings Site at Falls City, Texas* (UMTRA-DOE/AL-050520, 1992). This modification is submitted for replacement of the current text identified in the RAP: *Section 4.0, Cleanup and Control of Existing Contamination*.

The Department of Energy's UMTRA Ground Water Project, with support of the Texas Department of Health, has made a determination that 40 CFR 192 (Subpart B), Ground Water Compliance, has been addressed by inclusion of the proposed modification to Section 4.0 of the RAP.

The final Programmatic Environmental Impact Statement (PEIS) for the UMTRA Ground Water Project was approved for distribution on September 19, 1996. The Record of Decision was finalized and published in April 1997. The Department of Energy has approved and distributed the *Environmental Assessment (EA) of Ground Water Compliance Activities at the Uranium Mill Tailings Site, Falls City, Texas* (March 1998). A signed and approved Finding of No Significant Impact is anticipated in the near future. The proposed action is to comply with the U.S. Environmental Protection Agency (EPA) standards for the UMTRA Project sites (40 CFR 192) by meeting Supplemental Standards based on the limited use of ground water at the Falls City Site. The proposed action does not require compliance monitoring activities; however, best management practice ground water monitoring will be conducted by DOE to ensure protection of the uppermost aquifer's beneficial uses.

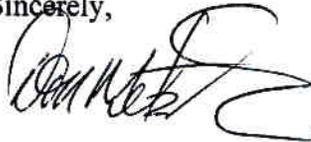
Enclosed with the proposed RAP modification is a copy of the final Environmental Assessment of Ground Water Compliance Activities at the Uranium Mill Tailings Site, Falls City, Texas (March 1998), a copy of the Site Observational Work Plan (SOWP) for Contaminated Ground Water at the Fall City Site, and a copy of the Baseline Risk Assessment (BLRA) of Ground

Water Contamination at the Uranium Mill Tailings Site Near Falls City, Texas. The SOWP and BLRA have previously been transmitted to your office. Your staff's review of the SOWP resulted in a letter to DOE on October 30, 1997 stating that "NRC staff has no technical objection to utilizing the No Further Remediation Compliance Strategy at the Falls City Site." The State of Texas Department of Health has reviewed the final SOWP and EA and submitted minor comments. Comments from the state of Texas were addressed, and modifications to the SOWP and EA were made.

NRC's concurrence that DOE has demonstrated compliance with Subpart B of 40 CFR 192, (aquifer restoration) at the Falls City, Texas, UMTRA Site will execute the second part of the two-step general license process for the Falls City Site (10 CFR 40.27). Because DOE has determined that best management practice monitoring is required, in addition to Long-Term Surveillance Plan (LTSP) disposal performance monitoring, the LTSP will be modified to include the additional monitoring scope.

The Grand Junction Office respectfully requests your comments or approval within 45 days. If you have questions or need further clarification, please call me at (970) 248-7612.

Sincerely,



Donald R. Metzler
Technical/Project Manager

Enclosures:

GCAP
EA
SOWP
BLRA

cc w/o enclosures:

M. Layton, NRC
G. Smith, TDH
R. Edge, DOE-GJO
R. Plienness, DOE-GJO

File GWFCT 1A (P. Saylor)

1.9

(GCAP)
March 19, 1998

40 CFR 192 (Subpart B) Ground Water Compliance Modification to the *Remedial Action Plan and Site Design for Stabilization of the Inactive Uranium Mill Tailings Site at Falls City, Texas*

4.0 Cleanup and Control of Existing Contamination

To achieve compliance with Subpart B of 40 CFR 192 (aquifer restoration) at the Falls City, Texas, UMTRA Site, the DOE proposes implementation of the "no ground water remediation strategy." This determination utilizes a consistent and objective strategy selection framework developed in the final *Programmatic Environmental Impact Statement (PEIS) for the Uranium Mill Tailings Remedial Action Ground Water Project* (October 1996).

The "no ground water remediation strategy" is based on ground water in the uppermost aquifer being classified as limited use, thus providing the basis for the application of Supplemental Standards. The term "limited use" is defined in the final EPA Ground Water Standards (60 FR 2854). Ground water within the uppermost aquifer at the Spook Site contains widespread ambient contamination that could not be cleaned up with methods reasonably employed by public water systems. These characteristics are the result of naturally-occurring conditions (natural uranium mineralization associated with alteration fronts) and from the effects of broad-scale human activity not related to uranium-milling operations (uranium exploration and mining activities). Superimposed on these conditions in the areas near the former site is residual ground water contamination as a result of milling and in-situ leaching during a period starting in 1961 and ending in 1983.

Applying the decision framework developed in the PEIS as the strategy selection process in the *Final Site Observational Work Plan (SOWP) for the UMTRA Project Site, at Falls City, Texas* (May 1997); the DOE has determined that the ground water in the uppermost aquifer was contaminated by uranium processing activities at the Falls City Site, but qualifies for Supplemental Standards based on the limited use conditions. The framework as applied to the Falls City Site consists of 5 evaluative steps that are discussed below.

The first step of the decision framework was an assessment of existing data. The uppermost aquifer consists of the both the Deweesville/Conquista aquifer and the Dilworth aquifer. The Dilworth aquifer was included as part of the uppermost aquifer because of a potential for hydraulic interconnection between the Deweesville/Conquista aquifer and the Dilworth aquifer. The potential interconnection, though unlikely, would have occurred as a consequence of improperly abandoned mineral exploration boreholes in the area. Section 4.0 of the SOWP provides details of the site conditions that includes the site history, sources of existing data, hydrogeologic setting, background ground water

quality, nature and extent of site-related ground water contamination, contaminant fate and transport, and risk evaluation. Evaluation of site data coupled with the Falls City Site conceptual model indicate that sufficient hydrological and ground water contamination characterization data exists to make an appropriate compliance strategy selection.

The second step compares the list of ground water contaminants with MCLs or background ground water quality. The contaminant list includes aluminum, ammonium, cadmium, cobalt, fluoride, iron, nickel, sulfate, uranium, and zinc. Of these, zinc, aluminum, and ammonium are within nutritional ranges or are of low toxic potency and/or high dietary ranges. An additional indicator of process-related contaminated ground water includes pH measurements. Ground water contaminants from the uranium processing operation have seeped into the subsurface and migrated into the ground water system in the uppermost aquifer, creating two plumes: (1) beneath former tailings piles 1, 2, 4, 5, and pond 6; (2) former pile 3.

The third step determines whether the contaminated ground water qualifies for Supplemental Standards based on the classification of ground water as limited use. The conceptual model in the final SOWP describes the regional background ground water quality and the ground water quality of the uranium mineralization belt in the area of the Falls City Site. The widespread ambient contamination and technical impracticability of treating the ground water meet the requirements for Supplemental Standards under Subparts B and C. The concentrations of uranium, and also manganese and sulfate, are found in background ground water associated with the uppermost aquifer that cannot be cleaned up using treatment methods reasonably employed in public water supply systems. A treatability analysis is detailed in the *Remedial Action Plan and Site Design for Stabilization of the Inactive Uranium Mill Tailings Site at Falls City* (1992).

The fourth step determines whether human health and environmental risks that result from applying Supplemental Standards are acceptable. There are no known livestock, domestic, or drinking water wells in the contaminated ground water of the Deweesville/Conquista aquifer. The background ground water quality is sufficiently poor in this aquifer and has no historic or current use as a drinking water supply. There is no known current use of the Dilworth aquifer as a drinking water supply within a 2-mile (3-kilometer) radius of the site. Water from this aquifer historically has been considered to be of poor quality. Water from the Dilworth aquifer has been used to water livestock and gardens in the site vicinity. This beneficial use can continue without adverse risk to animals or humans.

The fifth and final step in the framework selects an appropriate compliance strategy to meet the EPA Ground Water Standards. The selection is to perform no remediation based on the classification of ground water in the uppermost aquifer as limited use, which allows the application of Supplemental Standards. The limited use ground water at the Falls City Site is neither a current nor potential source of drinking water because of widespread ambient contamination that cannot be cleaned up using treatment methods reasonably employed in public water supply systems (40 CFR 192.11(e)).

As a best management practice, the Department of Energy will monitor ground water in the uppermost aquifer to ensure that beneficial uses such as irrigation and stock watering are protected. To ensure beneficial uses are protected and can continue to be used as a resource, and to monitor plume movement, wells 862, 886, 891, 924, and 963 will be sampled annually for 5 years (until 2002). At the end of the 5-year monitoring period, DOE will consult with the NRC, state of Texas, and the public to determine if continued monitoring is required. This ground water monitoring commitment is in addition to disposal cell performance monitoring identified in the *Remedial Action Plan and Site Design for Stabilization of the Inactive Uranium Mill Tailings Site at Falls City*. This monitoring requirement is being performed by the UMTRA Long-Term Surveillance and Maintenance Project.

Details supporting the: (1) regulatory framework requirements; (2) summary of site conditions; and (3) ground water compliance strategy selection can be found in the *Baseline Risk Assessment of Ground Water Contamination at the Uranium Mill Tailings Site Near Falls City, Texas*, (September 1995), *Final Site Observational Work Plan (SOWP) for the UMTRA Project Site, at Falls City, Texas* (May 1997), and the *Final Environmental Assessment of Ground Water Compliance at the Falls City, Texas, Uranium Mill Tailings Site* (March 1998).