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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

March 14, 1994

Colonel Thomas A. Norris, Director
Environmental Management Division
377th ABW
2000 Wyoming Blvd. SE, Suite 5659
Albuquerque, NM 87117-5659

Dear Colonel Norris:

RE: Conditional Acceptance of Post-Closure Plan, Sewage Lagoons and Golf Course Main Pond, February 9, 1994.
EPA ID No. NM9570024423

The New Mexico Environment Department (**NMED**) has reviewed your post-closure plan for the Kirtland Air Force Base (**KAFB**) Sewage Lagoons and Golf Course Main Pond. NMED accepts this plan upon KAFB meeting the following requirements:

1. Modify Section 5.3, "Clean Closure Requirements", to clarify conditions for clean closure.

2. Modify Section 6.6, "Phase II Activities", to distinguish between actions based on sludge samples and actions based on ground-water samples.

3. Provide an Appendix G to supply detailed procedures for the removal or decontamination of sludge and dry sediments.

4. In Appendix A, explain the source of soil action level for Chromium (total), and provide a soil action level for Chromium III.

Enclosed are modifications of the two sections we recommend as replacements for your plan submitted February 9, 1994. When you have provided the required information, we will issue the plan as modified for public notice in accordance with the New Mexico Hazardous Waste Management Regulations (HWMR-7), Part VI, 40 CFR 265.118(f). Final approval of the post-closure plan may also contain modifications from any public comments received.

As stated in the Denial of Clean Closure letter of September 27, 1993, if KAFB can demonstrate that clean closure standards have been met for the units at the end of Phase I, NMED will reconsider

the denial decision and KAFB's status for conducting further post-closure activities.

Please contact Mr. Steve Zappe at (505) 827-4308 if you have any questions.

Sincerely,

Kathleen M. Sisneros

Kathleen M. Sisneros
Director, Water and Waste Management Division

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cc: Benito Garcia, HRMB
Barbara Hoditschek, HRMB
Walt Darr, KAFB
Nancy Morlock, EPA
File: KAFB Red 94

5.3 Clean Closure Requirements

KAFB has proposed clean closure for the sewage lagoons and golf course main pond, based on characterization of the sludge as a nonhazardous solid waste and declining concentrations of total Cr in ground-water samples collected over the past four years. ~~The EPA has delineated practical guidelines for clean closure that grant discretion to a regulating authority while maintaining protection for human health and the environment (U.S. EPA, 1989a).~~

5.3.1 Clean Closure

According to the ~~strict~~ definition of clean closure, all hazardous wastes must be removed or decontaminated. The remedy includes no engineering controls, and no operation or maintenance activities are required to maintain the site. In addition, no land use restrictions are imposed at the site. With respect to minimizing hazards to human health and the environment, any ground water that could be affected must meet drinking water standards. ~~be protected.~~ Leachate from the closed facility must meet TCLP regulatory levels. ~~drinking water standards or meet the risk range calculated for the site.~~

5.3.2 Hybrid Clean Closure

A variation of clean closure, termed hybrid clean closure, has been presented as a means of allowing practical and more cost-effective solutions to be implemented at some sites (U.S. EPA, 1989a). The remedies for these sites must still provide protection from hazards to human health and the environment. For example, low concentrations of waste that do not pose a threat of exposure through migration by any route may remain in place; however, ground water must be sufficiently protected so that it meets either drinking water standards or the risk range calculated for the site.

5.3.3 Closure at the Sewage Lagoons and Golf Course Main Pond

Certification that the sewage lagoons and golf course main pond were closed was documented in a letter to NMED dated August 12, 1993 (KAFB, 1993). The only deviation from the approved

closure plan was to leave the sludge in place. KAFB believes that the closure qualifies as a hybrid clean closure based on characterization of the lagoon and pond sludges as nonhazardous solid wastes that do not pose a present or potential hazard to human health or the environment. Based on the analytical results, it appears that most of the Cr present in soil, sludge, pond sediment, and ground-water samples is Cr(III). Although the sludge at both sites was originally accumulated in a surface impoundment, KAFB believes that both facilities qualify in their current condition and use as land application sites, and that the metal concentration guidelines for sewage sludge provide a reasonable perspective from which to view the proposal for clean closure of these sites. However, to meet the requirements for clean closure under HWMR-7, Part VI, 40 CFR 265.228(a)(1) at the end of Phase I, the following conditions must be met:

(1) sludge analysis results show Cr concentrations either below both TCLP regulatory levels and soil action levels, or sludge and pond sediments are removed or decontaminated, and

(2) ground-water monitoring results show Cr concentrations below WQCC levels.

6.6 Phase I Activities - Sludge and Sediment Management

If, after completing sludge sampling, Cr TCLP concentration of any sludge sample exceeds the regulatory level of 5.0 mg/l, or either Cr(III) or Cr(VI) concentrations exceed the appropriate soil-based action level, KAFB will remove or decontaminate the associated sludge and dry sediment from the sewage lagoon and golf course main pond as hazardous wastes according to 40 CFR 265.228(a). Removal and decontamination procedures are fully described in Appendix G.

6.67 Phase II Activities - Ground-water Management

~~In the event that total Cr concentrations in ground-water samples collected at the sewage lagoons and the golf course main pond do not exceed the WQCC standard, the two sites will be closed. Based on the criteria presented in the Part 503 sewage sludge disposal standards, the sewage lagoon sludge will be tilled in place to accelerate the natural soil processes of degradation and incorporation. The golf course main pond will then be leveled and filled with clean material.~~

~~In the event that~~ If, at the end of Phase I monitoring, total Cr concentrations in ground water at either ~~site~~ unit, minus the acceptable background concentration of total Cr determined during Phase I, exceed the WQCC standard of 0.05 mg/l, KAFB ~~will remove the associated sludge or dry sediment to the KAFB landfill. Further, one additional year of~~ will continue quarterly ground-water monitoring at both the noncomplying site and at least one background well according to 40 CFR 265.117 and Subpart F. Furthermore, KAFB will develop a ground-water quality assessment plan according to 40 CFR 265.93(d). ~~will be conducted while a ground-water remedial action plan is prepared~~. The sampling and analytical procedures will be the same as those conducted during Phase I.

If, at the end of Phase I monitoring, total Cr concentrations in all ground-water samples collected at the sewage lagoons and the golf course main pond do not exceed the WQCC standard, KAFB will cease further ground-water monitoring activities. KAFB will then close both sites by managing the sludge and dry sediments as described above.

The following annotated outline addresses ~~the~~ two anticipated potential scenarios for Phase I and Phase II management activities.

~~*I. No Cr concentrations exceed the WQCC standard*~~

~~In the event that total Cr concentrations in ground-water samples collected at the sewage lagoons and the golf course main pond do not exceed the WQCC standard, the two sites will be closed. Based on the criteria presented in Part 503, the sewage lagoon sludge, which is will be considered a solid waste, will be tilled in place to accelerate the natural soil processes of organic matter degradation and incorporation. The golf course main pond will be leveled and filled with clean material.~~

~~I~~I. Cr concentrations exceed the WQCC standard

If ~~In the event that~~ ground-water total Cr concentrations at either site exceed the WQCC standard, KAFB will carry out the following post-closure activities according to 40 CFR 265.117:

A. *Ground-water monitoring.* Quarterly ground-water monitoring at the noncomplying unit and at least one background well will continue ~~be conducted~~ in compliance with 40 CFR 265, Subpart F. The sampling and analytical procedures will be the same as those conducted during Phase I.

~~*B. Sludge or dry sediment removal.* KAFB will remove the associated sludge or dry sediment from the noncomplying unit to the KAFB landfill.~~

~~C~~B. *Ground-water quality assessment and remedial action plans.* KAFB will prepare a quality assessment plan to determine the concentrations, rate, and extent of migration of Cr in the groundwater. KAFB will also, in conjunction with NMED, ~~will~~ prepare a remedial action plan to reduce the concentration of total Cr in the ground-water aquifer beneath the noncomplying unit(s).

~~D~~C. *Cover design plan.* KAFB will prepare cover design plans for the noncomplying unit(s). All plans will be subject to NMED approval. The cover design will meet the requirements of 40 CFR, Parts 265.228, for surface impoundments, and 265.310, for landfills. These two sections detail requirements that include, at a minimum, provisions for (1) minimal migration of fluids through the closed unit, (2) minimal maintenance requirements, (3) adequate surface drainage run-off and erosion control, (4) settling and subsidence, to maintain cover integrity, and (5) cover permeability less than or equal to the natural subsoils present at the unit.

II. No Cr concentrations exceed the WQCC standard

If total Cr concentrations in all ground-water samples collected at the sewage lagoons and the golf course main pond do not exceed the WQCC standard, KAFB will close the two sites by managing the sludge and dry sediments according to guidelines based upon the results of sludge sampling.