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June 13, 1991

Col. Edward A. Behling
Director
Environmental Management Division
Headquarters 1606 Air Base Wind (MAC)
Kirtland Air Force Base, NM 87117-5000

RE: NMED Review of KAFB Base-wide Closure Plan and Individual Unit Closure Plans for Golf Course, Golf Course Main Pond and Sewage Lagoons

Dear Col. Behling:

The Hazardous and Radioactive Waste Bureau (HRWB) has reviewed the Base-wide Closure Plan and individual Unit Closure Plans for the sewage lagoons, golf course and golf course main pond submitted by Kirtland Air Force Base (KAFB) November 30, 1990. While KAFB addressed many of the changes required by HRWB (letter dated July 7, 1990 and meeting July 25, 1990), many deficiencies remain. The following are the changes required by the HRWB. Note that the existing groundwater monitoring systems for the main golf course pond and the sewage lagoons are not approved systems. Clean closure will only be granted if monitoring with an approved ground-water monitoring system shows no detection of Appendix IX constituents:

Base-wide Closure Plan

- 5.2.2 Quality control procedures need to be specifically outlined either here or in an appendix. This needs to be a stand-alone document and therefore should not contain references to previously submitted documents. A tailored version of the quality control guidelines from SW-846 would be appropriate. See item 5.4.
- 5.2.4 As above, do not refer to previously submitted documents.



KAFB1126

Col. Edward A. Behling
June 13, 1991
Page 2

- 5.2.7 The ground water monitoring plan should include a commitment to ground-water monitoring pursuant to 40 CFR §265.90 through 265.93.
- 5.4 Must not refer to a previously submitted document. Include QA/QC outline from Chapter 1 of SW 846, detailing standards, acceptable surrogate recovery numbers, etc.
- 6.2.2 TCLP stands for Toxicity Characteristic Leachate Procedure, not Toxicity Contaminant Leachate Procedure. Using WQCC standards converted to mg/kg is not acceptable. For any RCRA listed waste detected, a health-based risk assessment calculation has to be done. This calculation is as follows:

For noncarcinogenic contaminants

Where "C", the acceptable residual soil concentration, C will be equal to the RfD divided by the amount of soil ingested daily per kilogram of body weight (the standard model for noncarcinogenic contaminant exposure is a 10 kg child ingesting 200 mg soil/day):

$$C = \frac{\text{RfD} \left(\frac{\text{in mg constituent}}{\text{kg/day}} \right)}{\frac{20 \text{ mg soil}}{\text{kg/day}}}$$

* RfD represents reference dose.

For carcinogenic contaminants

$$C = \frac{R}{\text{PF (in day/mg/kg)} \times \text{DI (in mg/kg/day)}}$$

Where

C= Acceptable toxic concentration for a lifetime risk for one cancer death at risk "R."

Col. Edward A. Behling
June 13, 1991
Page 3

R= Risk set at 1×10^{-6} for clean closure.

PF= Cancer Potency Slope Factor, the RfD for carcinogenic substances.

DI= Daily Soil Ingestion, use standard 70 kg adult ingesting 100 mg soil per day directly

If the total constituent concentrations are above the limits calculated, the contaminated media must be removed to a permitted TSDF.

The third paragraph should read 40 CFR §264, Appendix IX.

8.2, 8.3 The ground water monitoring plan should include a commitment to ground-water monitoring based on 40 CFR §265.90 through 265.93.

Appendix

F This table is subtitled "Part 261 Appendix IX-Ground-water Monitoring List." It should read Part 264 Appendix IX.

Unit Closure Plan for Golf Course

5.2.2,
5.2.8,
5.4

Do not refer to previously submitted documents. Include in Base-wide Closure Plan and refer to it.

Appendix

A For any constituents detected, use the health-based risk assessment calculation shown above.

Also, there needs to be a description of Enseco's standards, acceptable surrogate recoveries, etc.

Unit Closure Plan for Golf Course Main Pond

5.2.2 Do not refer to previously submitted documents. Include in Base-wide Closure Plan and refer to it.

5.2.7 Are these parameters Appendix IX parameters? If so, it needs to be stated here. If not, there needs to be sampling for Appendix IX constituents.

It is stated that Water quality data summarized from the ITIR report is presented in Appendix A. This data is not there.

Clean closure will only be granted if monitoring with an approved ground-water monitoring system shows no detection of Appendix IX constituents.

5.3.4 The third paragraph should read 40 CFR §264, Appendix IX. Also, it is stated that extensive quality control data are provided in the laboratory reports from Enseco. This is not provided. The next sentence states that Enseco commented about acetone detection in a letter found in Appendix D. There is no Appendix D.

6.1 The seventh paragraph should read 40 CFR §264, Appendix IX.

For sludges or soils that have contaminants detected, two questions need to be addressed: 1) Is contamination above or below levels of regulatory concern? 2) What will be the fate of the contaminated media?

Soil and Sludge contaminants above regulatory concern are defined as:

- a) any RCRA TCLP constituent that is present in concentrations greater than or equal to those prescribed in 40 CFR §261.24 in a TCLP analysis.
- b) any RCRA constituents listed in 40 CFR §261.30 through 261.33 detected in total laboratory analysis that are in concentrations greater than or equal to the acceptable limits derived from health-based risk assessment calculation shown above.

Col. Edward A. Behling
June 13, 1991
Page 5

- c) any TCLP constituent detected below concentrations prescribed in 40 CFR §261.24 in a TCLP analysis, but detected in concentrations greater than or equal the acceptable limits derived from health-based risk assessment calculation shown above in a total laboratory analysis.

Any soil or sludge with contamination above regulatory concern shall be removed to a permitted TSDF.

The fate of any soil or sludge with contamination below regulatory concern is left to the discretion of KAFB.

The above procedure must be included in the closure plan.

As there is as of yet no approved ground-water monitoring system for the golf course main pond, HRWB cannot determine whether ground-water contamination does or does not exist. Therefore, there must a contingency plan to address the possibility of closure in place. This plan will be designed to fulfill the requirements of 40 CFR §265.111 and §265.220-230.

- 7.1.2 It is stated that since the unit is undergoing clean closure, the piping and structures will be decontaminated only if necessary. What determines if decontamination of is necessary? List steps leading to this decision.

Appendix

A For every Appendix IX constituent detected, a risk assessment calculation has to be done. This calculation is shown above.

Also, there needs to be a description of the laboratory's standards, acceptable surrogate recoveries, etc.

HRWB requires that a table be included that shows complete sampling data for TCLP, Appendix IX and non-Appendix IX analyses.

Unit Closure Plan for Sewage Lagoons

5.2.7 Clean closure will only be granted if monitoring with an approved ground-water monitoring system shows no detection of Appendix IX constituents.

6.1 As there is as of yet no approved ground-water monitoring system for the sewage lagoons, HRWB cannot determine whether ground-water contamination does or does not exist. Therefore, there must a contingency plan to address the possibility of closure in place. This plan will be designed to fulfill the requirements of 40 CFR §265.111 and §265.220-230.

There is a typo in the third paragraph. It should read Part 264.

This section states that the following procedures will be used for semi-volatile organics testing: TCLP test for metals and a test for fluoranthene (misspelled in document) and pyrene. Why would one run TCLP metal for semi-volatile organics?

It is also stated that if test results fall below regulatory limits, the sludge piles will be removed from the site using a front end loader and a soil hauler and used as nonhazardous fill material. This is acceptable as long as "levels of regulatory concern" are defined as in the section addressing the main golf course pond.

Since 1,1,2-trichloro-1,2,2-trifluoroethane, a RCRA listed waste, was detected in the soil at low levels, the soil will be re-sampled to a depth of ten feet below the surface to establish that concentrations are decreasing with depth. If soil concentrations are shown to decrease with depth, then health-based risk assessment calculations must be performed to determine if soil can remain in place. If soil concentrations increase with depth, sampling should continue to a depth that establishes a decrease in concentrations. If no decrease in concentrations can be established, clean closure will not be granted.

6.6 The second paragraph refers to section 6.6 in the BWCP when there is no section 6.6 in the BWCP. This should read section 6.5.

Col. Edward A. Behling
June 13, 1991
Page 7

Appendix

A Table 4. Should read 40 CFR §264 Appendix IX.

What is this table trying to show? Are these soil samples? If so, risk assessment calculations should be performed for each compound identified above detection limits and the results used as the regulatory limit.

HRWB requires that a table be included that shows complete sampling data for TCLP, Appendix IX and non-Appendix IX analyses.


Table 5. 2-Butanone (methylethyl ketone), is a volatile organic compound.

Appendix

D Since 1,1,2-trichloro-1,2,2-trifluoroethane, methylene chloride, 2-butanone and acetone were found in sludges, these need to be added to the list of contaminants of concern.

If you have any questions regarding these matters, please contact Joe Kennedy of my staff at (505) 827-2424.

Sincerely,



Dr. Bruce A. Swanton, Compliance Supervisor
Hazardous and Radioactive Waste Bureau

cc: Edward Horst, HRWB Program Manager