



BRUCE KING
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2850

ENTERED

JUDITH M. ESPINOSA
SECRETARY

RON CURRY
DEPUTY SECRETARY

MEMORANDUM

TO: File, KAFB/red/93

THROUGH: Edward Horst, RCRA Program Manager, and Steve Alexander, ^{mt}
Technical Section Supervisor

FROM: Ron Kern, ^{AKC} Technical Program

DATE: February 26, 1993

SUBJECT: **Review of Sample Data at the Kirtland Air Force Base Golf Course, Albuquerque**

The Technical Section, as requested by Stephanie Stoddard of the RCRA Permitting Program, has done an evaluation of the sampling data from the Golf Course (GC) and four (4) Decorative Ponds (DP) located on the GC of Kirtland Air Force Base (KAFB). This review was requested to determine if the proposed Clean Closure with No Further Action (NFA) for the GC and DP's is supported by all of the requested and available data.

Data analyzed were located in NMED files (KAFB/blue/89); in the Unit Closure Plan for GC, prepared by H+GCL (September 10, 1991), consultant to KAFB on GC; and in the Installation Restoration Program Stage 2 Interim Technical Information Report (six volumes), prepared by the U.S.G.S. (September, 1990).

Contamination at the GC was possible because water for irrigation sprinkling of the fairways and a driving range was derived from water in the Golf Course Main Pond (GCMP). The water in the GCMP was partially potable water (one-third) and partially wastewater (two-thirds) obtained through a pipeline from two (2) sewage lagoons (SL). The DP's were filled periodically for aesthetic purposes with either fresh water or water from the GCMP. During the operating life of the SL's, approximately 1.4 gallons of 1,1,1-trichloroethane (TCA) had been discharged into the SL's. Discharge of effluent from the SL's ceased in October, 1987, when the SL's, DP's, and GCMP were taken out of service.

Sampling of Fairways and Driving Range:

The GC sampling program required by NMEID stipulated that six (6) inch soil core samples were to be collected on the eighteen (18) fairways and one (1) driving range. The samples were to be taken within one (1) foot of an irrigation emitter located at the lowest elevation on each of the fairways and driving range. Samples were

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to be analyzed specifically for total chromium, dichloromethane, and TCA (Letter from NMEID to KAFB, July 14, 1989).

Samples, however, were ultimately analyzed for chromium (EP Tox) and VOC's (Method 8010). Soil sampling was completed and results transmitted to NMEID on June 6, 1989. Analytical results for all samples from the 1989 GC sampling program indicated no detection of chromium (EP Tox), TCA, dichloromethane, and other VOC's.

Following a review of the sample analyses, Boyd Hamilton (then Program Manager of the Hazardous Waste Program) concluded in a letter to KAFB (July 14, 1989) that the "golf course fairways and driving range are not a hazardous waste treatment area due to the use of irrigation water from the sewage lagoons."

Sampling of Decorative Ponds:

The DP sampling program required by NMEID presumably stipulated only sampling of one (1) dry sediment at a low spot in each pond. Soil below the pond sediment was not sampled. All samples were eventually analyzed for VOC's (Method 8240), Semi-VOC's (Method 8270), Organochlorine Pesticides (Method 8080), total metals, and EP Tox metals. Analyses were completed in June, 1990.

Of the four samples analyzed, only the sample from location 2 had a detectable organic contaminant (0.19 ppm acetone). The Closure Plan for GC concludes that this is due to lab contamination. Acetone, however, was not detected in the method blank analyzed for these samples. Acetone was also detected in one (1) of three (3) dry sediment samples from the GCMP (0.14 ppm) and in most samples of dry sludge from the SL's. ¹These acetone concentrations are less than the action level guideline (8000 ppm) for acetone in soils (FR; July 27, 1990; EPA; 40 CFR Parts 264, 265, 270, and 271; Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities; Proposed Rule).

TCA, and dichloromethane were not detected in any samples from the DP's.

Total chromium was detected at a maximum concentration of 37.2 ppm in dry sediments from the DP's. ²Assuming that this is all chromium (VI), this concentration is less than the action level guideline (400 ppm) for chromium (VI) in soils (FR; July 27, 1990; EPA; 40 CFR Parts 264, 265, 270, and 271; Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities; Proposed Rule).

Conclusions:

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The proposed clean closure of the Golf Course and four (4) Decorative Ponds at the Golf Course is supported by the data requested from and provided by KAFB.

The above-mentioned data and information were written and related to Stephanie Stoddard, RCRA Permitting Program, on February 26, 1993.

- 1,2: Although it is not an accepted practice to make determinations of contaminant rate and extent based on health-based levels, the goal of this sampling event was to determine the presence of contaminants and to determine if those levels posed a threat to human health and the environment.

cc: Steve Alexander, Technical Section Supervisor
Stephanie Stoddard, RCRA Permitting Program

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