



KAFB 95
DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 377TH AIR BASE WING (AFMC)
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11 Jul 95

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2000 Wyoming Blvd SE
Kirtland AFB NM 87117-5659

Ms. Nancy Morlock, Environmental Engineer
RCRA Permits Branch
U.S. EPA Region 6
1445 Ross Ave, Suite 1200
Dallas TX 75202-2733

Dear Ms. Morlock

KAFB is in receipt of your 14 Jun 1995, letter concerning our proposed sampling and analysis plan for SWMU RW-68, Radium Dump/Slag Piles, and the following information is submitted in response to your questions:

General Comments

1. KAFB proposes to conduct the RFI work in accordance with the Stage 2C, Appendix III, Health and Safety Plan, Project Management Plan, and Data Collection Quality Assurance Plan. However, if the Base Wide Generic Plan submitted to the EPA March 1995 is approved at the time field work is undertaken, this document will become the Workplan guide.

2. KAFB proposes to use PID field screening to verify that each borehole is free of VOC type contamination. The boreholes will be drilled to a depth of 15 ft below grade and if field screening indicates contaminants at the 10 or 15 ft depths, the borehole will be extended in 5 ft increments until two clean samples are logged. In addition, field screening methods will be utilized to assure soil samples are free of radioactive constituents as well.

If metals are found to be present in the soil samples, an additional phase of investigation will be undertaken to further delineate the extent of their presence.

KAFB1652



Cratering Area

1. Although the site is approximately 42 acres in size, the nature of the activities were such that a substantial clear zone was probably necessary, so a majority of the area was not used to conduct explosives studies. The term "Cratering Area" is somewhat misleading because craters are not readily observed. However, there are scattered sites where the soil looks disturbed, small blast holes (6 in. diameter) are recognizable, and tumbleweeds are in abundance. According to our contractor, tumbleweeds flourish in areas of soil disturbance. Therefore, because of the lack of distinguishable craters in the area, sample locations were selected primarily on the basis of soil disturbance and tumbleweed growth patterns. At one site selected for sampling, disturbed soil, tumbleweeds, and blasting caps with primer cord were observed. Blasting materials were not noted at any other site in the Cratering Area. Small detonation areas are up to 10 ft in diameter while large detonation areas are 10 - 20 ft in diameter. Sampling locations are depicted on Figure 1.

KAFB's intent is to approach the investigation in two phases if appropriate. Phase I is to be conducted immediately using FY95 funds which have become available because of a reduced sampling requirement at SWMU LF-56. If contaminants are found to be present in the 10 site sampling program, a Phase II program will be implemented using FY96 funds. Findings from each phase of investigation will be incorporated in the RFI due to the EPA December 1996.

Cratering research involved detonating charges both above ground and subsurface, while aircraft vulnerability testing involved firing on the aircraft directly and/or detonating charges on the ground at various distances to evaluate for crew safety and structural deficiencies. The intent of the sampling plan is to determine if contaminants are present in a representative sample of the disturbed sites, which will justify investigation of the remaining disturbed locations.

2. The site is situated adjacent to an abandoned dirt runway that was apparently built during World War II in, what was then, a remote area. Planes were flown in then moved out into the test area and subjected to combat type conditions. It is unknown how many detonations would have occurred during these operations but there seems to be a concentration of "pock marked" ground and soil disturbance near the north-south portion of the dirt runway. During the estimated period 1957 to 1963 the site was used by SNL to conduct research to determine the depth to which a nuclear device would have to be buried in order for there to be no crater development at the ground surface. The charges are believed to have been up to eight pounds of TNT in weight, but there may have been one or more that weighed 500 pounds. In order to generate a graphical plot of ground surface effects of the underground blasts, the charges were detonated at various depths as

well as above ground. In general, the formula used to determine proper burial depth in feet is: $2.5[(\text{charge wt})E^{1/3}]$. Based on this formula, an eight pound charge would be buried 5.0 ft deep to show no surface evidence of the blast. According to Mr. Luke Vortman, retired SNL researcher, the explosives were high order, had no tracer material or chemical additives, and should only have resulted in Carbon as a by-product of the combustion process.

KAFB is evaluating each sample for gross alpha and gross beta in the interest of completeness. On the chance that armor piercing projectiles were used at the site, the gross alpha/beta analysis will help confirm and identify their use.

The EOD Range buffer zone encroaches on the northeast portion of the cratering area and EOD personnel periodically survey the area for unexploded ordnance. In addition, work activities will be conducted in accordance with the Brown & Root amended Workplan, which was included with the Stage 2E Workplan.

3. Figure 2 depicts two photographs from the site. The top photo is a location flagged for borehole sampling and shows a disturbed area with blasting caps and primer cord on the ground and tumbleweeds around the perimeter. The bottom photo is of a topographical depression. It is not known if this depression is natural or the aftereffects of an explosive charge.

Slag Piles

KAFB previously identified a Voluntary Corrective Action (VCM) to stabilize and remove the slag piles in 1995. The Action Plan to accomplish this task as well as additional planned interim remedial action, will be submitted to the EPA in about 45 days.

If you have any questions or need any additional information on the matter, please contact me at (505) 846-2773/0053.

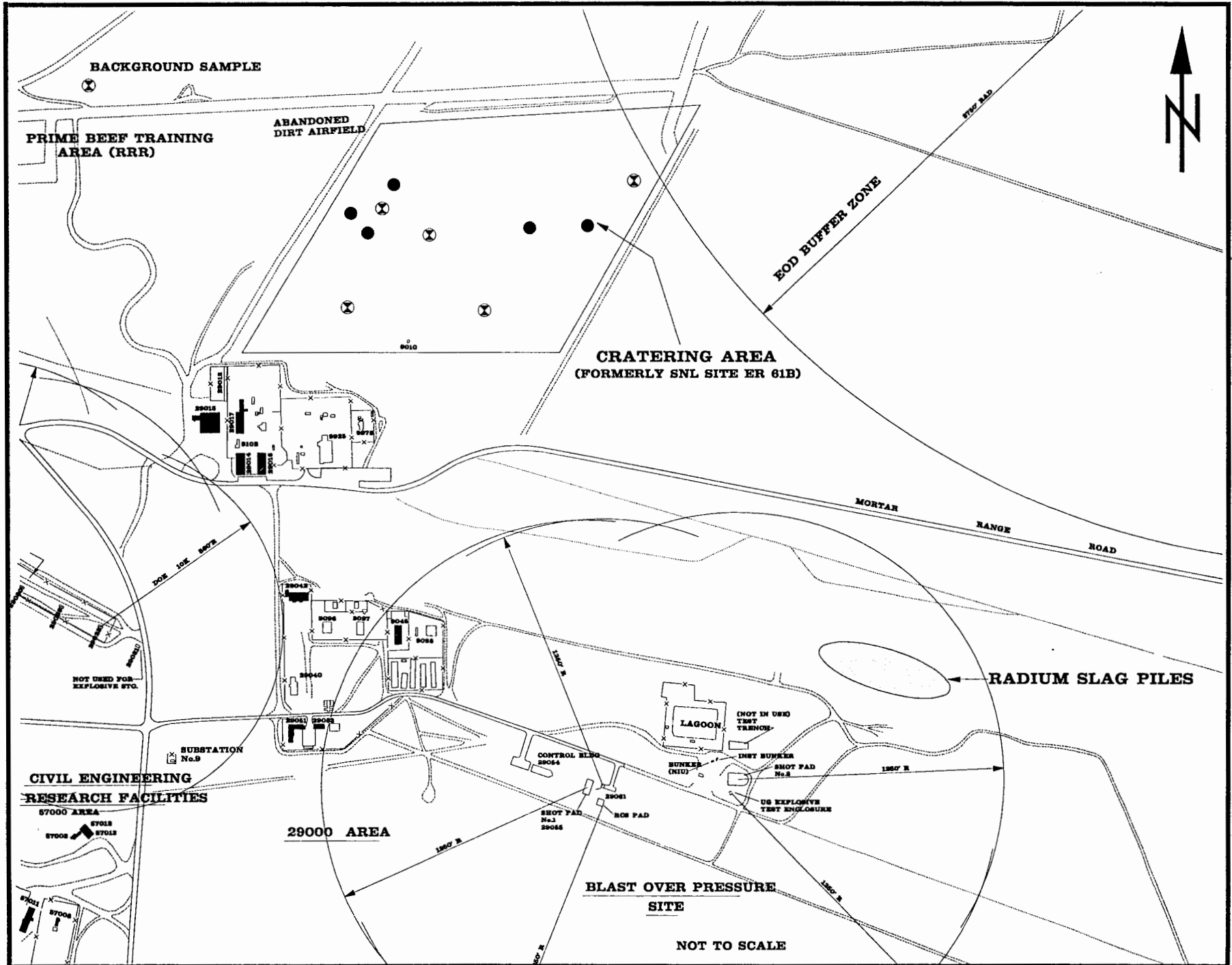
Sincerely

A handwritten signature in black ink, appearing to read "Christopher B. DeWitt". The signature is fluid and cursive, with a large initial "C" and "D".

CHRISTOPHER B. DeWITT, R.P.G.
Chief, Restoration Branch
Environmental Management Division

cc:
NMED-HRMB (Mr. Pullen)

RW-68 SAMPLING AND ANALYSIS PLAN



- GRAB SAMPLE
- ⊗ BOREHOLE

NOT TO SCALE

FIGURE 1



CRATERING AREA
SAMPLING LOCATION



CRATERING AREA
TOPO DEPRESSION