



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 377TH AIR BASE WING (AFMC)

ENTERED

10 Jul 95

377 ABW/EMC  
2000 Wyoming SE  
KAFB NM 87117-5659

Colby Muckelroy  
New Mexico Environment Department  
Hazardous and Radioactive Materials Bureau  
525 Camino De Los Marquez  
P.O. Box 26110  
Santa Fe, New Mexico 87502



Dear Mr. Muckelroy

As a condition of the Kirtland Air Force Base (KAFB) Resource Conservation and Recovery Act (RCRA) Part B permit (NM 9570024423-OD) for the Explosive Ordnance Disposal Range (EOD) Open Detonation (OD) quarterly soil sampling has been conducted. The results of the soil sampling are attached to this letter.

Background soil samples were taken outside the cleared area used for detonations. Quarterly soil samples were taken on 28 April 95 along eight lines radiating from the detonation pit. Each line had three sample locations 25 feet apart. At each site, soil was sampled from the surface and at a depth of 1 to 2 feet below ground surface. Line 0 is true north with the next line 45 degrees to the East (see attached Figure). Each subsequent line is 45 degrees from the next until line 0 is reached.

In addition to the quarterly soil sampling results, results from the initial background soil sampling are included. A map attached to the sampling results shows sample site locations. Background values reflect 25 years of operations that have occurred at the EOD facility.

A comparison of background values to those in the pit and the 24 four sampling locations indicates that no RCRA constituent are significantly above background with the exception of lead, chromium, and cadmium. However, as demonstrated in the risk assessment in the Part B permit, lead, chromium, and cadmium are not mobile in the environment found at the EOD range.



Some of the sample analyses of Acetone, Di-n-butylphthalate, bis(2-Ethythexyl)phthalate and toluene exceeded the detection limits (See footnote a on the attached table). These constituents (both volatile and semivolatile) are found in only a few of the samples (see attached table). None of the aforementioned constituents are accepted at the EOD for treatment. Therefore, it is KAFBs opinion that acetone, Di-n-butylphthalate, bis(2-Ethythexyl)phthalate and toluene are from laboratory contamination. Di-n-butylphthalate and bis(2-Ethythexyl)phthalate were detected in the some of the quality control samples.

Phenol was detected in the surface sample of line 135 (sample ID 9505011050). Phenols are used in some of the classified explosives that are treated at the EOD facility. However, since no other samples detected phenol, KAFB believes that phenol is not of concern at the EOD range area.

If you have any questions, please contract me at 846-5037 or Mr. Terry Cooper at 846-0007.

Respectfully



WALTER S. DARR III

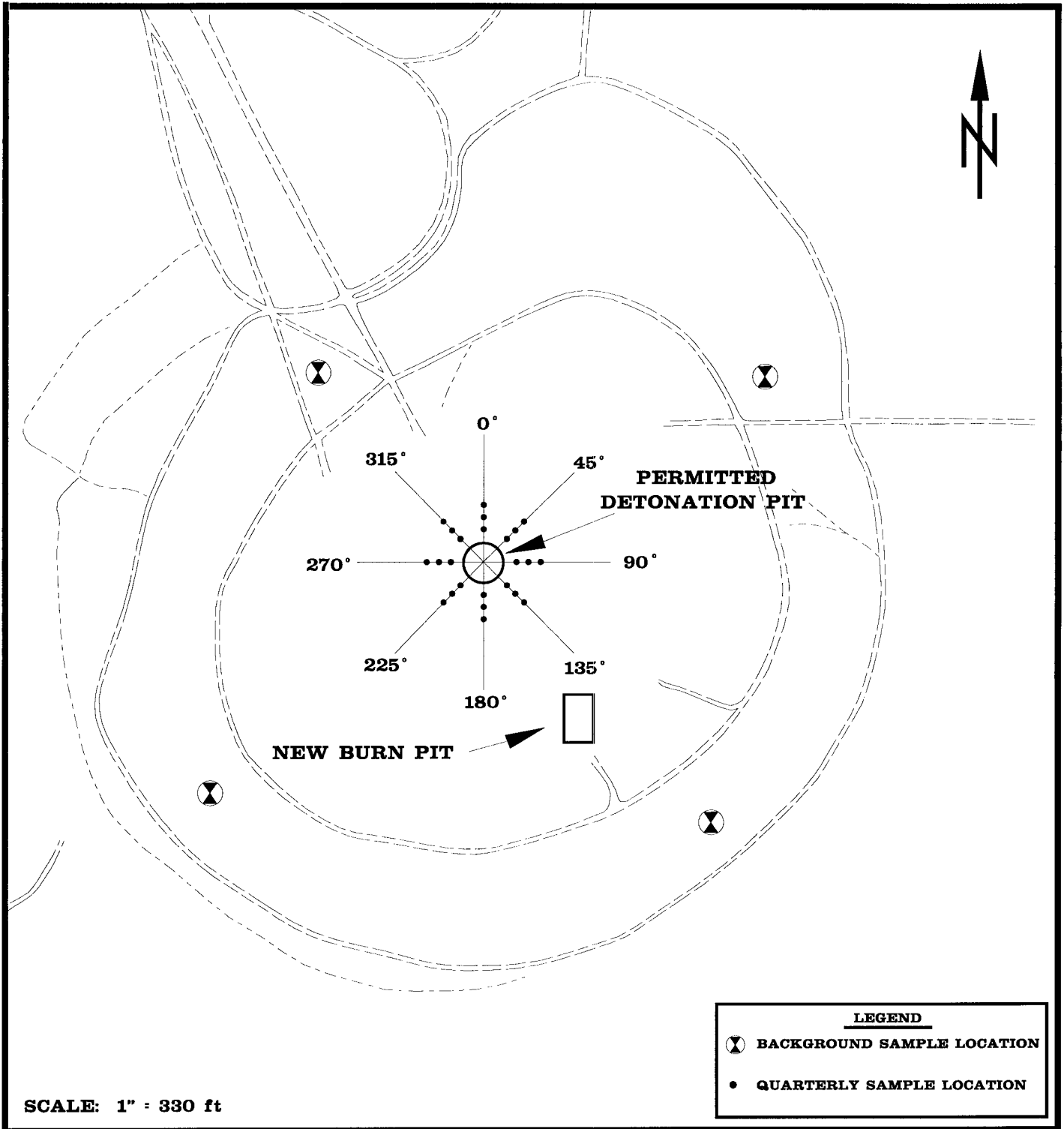
Chief Compliance

Environmental Management

Attachments:

1. Summary Table
2. Sampling Location Map
3. Sampling Data

# SAMPLE LOCATION PLAN



## EOD RANGE

**1st Quarter Sampling Results**  
**Jan - April 1995**

<b>VOLATILES/SW846 8240B</b>	<b>UNITS</b>	<b>DETECTION LIMITS</b>	<b>RESULT</b>
Dichlorodifluoromethane	mg/Kg	0.010	ND
Chloromethane	mg/Kg	0.0050	ND
Iodomethane	mg/Kg	0.0050	ND
Acetone	mg/Kg	0.0050	D <sup>a</sup>
Bromomethane	mg/Kg	0.0050	ND
Vinyl Chloride	mg/Kg	0.0050	ND
Chloroethane	mg/Kg	0.0050	ND
Trichlorofluoromethane	mg/Kg	0.0050	ND
Freon 113	mg/Kg	0.0050	ND
Carbon Disulfide	mg/Kg	0.0050	ND
Acrolein	mg/Kg	0.020	ND
Methylene Chloride	mg/Kg	0.010	ND
1,1-Dichloroethene	mg/Kg	0.0010	ND
1,1-Dichloroethane	mg/Kg	0.0010	ND
Acrylonitrile	mg/Kg	0.020	ND
trans-1,2-Dichloroethene	mg/Kg	0.0010	ND
Chloroform	mg/Kg	0.0010	ND
1,2,-Dichloroethane	mg/Kg	0.0010	ND
Vinyl Acetate	mg/Kg	0.0050	ND
cis-1,2-Dichloroethene	mg/Kg	0.0010	ND
2-Butanone (MEK)	mg/Kg	0.0050	ND
1,1,1-Trichloroethane	mg/Kg	0.0010	ND
Carbon Tetrachloride	mg/Kg	0.0010	ND
Bromodichloromethane	mg/Kg	0.0010	ND
1,2-Dichloropropane	mg/Kg	0.0010	ND
Dibromomethane	mg/Kg	0.0010	ND
trans-1,3-Dichloropropene	mg/Kg	0.0010	ND
Trichloroethene	mg/Kg	0.0010	ND
Chlorodibromomethane	mg/Kg	0.0010	ND
Ethyl Methacrylate	mg/Kg	0.0050	ND
2-Chloroethylvinyl Ether	mg/Kg	0.0050	ND
1,1,2-Trichloroethane	mg/Kg	0.0010	ND
Benzene	mg/Kg	0.0010	ND
cis-1,3-Dichloropropene	mg/Kg	0.0010	ND
Bromoform	mg/Kg	0.0010	ND
4-Methyl-2-Pentanone (MIBK)	mg/Kg	0.0050	ND
Tetrachloroethene	mg/Kg	0.0010	ND
1,1,2,2-Tetrachloroethane	mg/Kg	0.0010	ND
1,2-Dibromoethane	mg/Kg	0.0010	ND
2-Hexanone (MBK)	mg/Kg	0.0050	ND
1,1,1,2-Tetrachloroethane	mg/Kg	0.0010	ND
Toluene	mg/Kg	0.0010	D <sup>a</sup>
Chlorobenzene	mg/Kg	0.0010	ND
Ethylbenzene	mg/Kg	0.0010	ND
1,4-Dichloro-2-Butene	mg/Kg	0.010	ND
Styrene	mg/Kg	0.0010	ND
P/M Xylene	mg/Kg	0.0020	ND

**1st Quarter Sampling Results**  
**Jan - April 1995**

	UNITS	DETECTION LIMITS	RESULT
O-Xylene	mg/Kg	0.0010	ND
1,2,3-Trichloropropane	mg/Kg	0.0010	ND
Methyl-tert Butyl Ether	mg/Kg	0.010	ND
1,2-Dichlorobenzene	mg/Kg	0.0010	ND
1,3-Dichlorobenzene	mg/Kg	0.0010	ND
1,4-Dichlorobenzene	mg/Kg	0.0010	ND
<b>CALCIUM (CAA)/SW846 7140</b>			
Calcium, Ca	mg/Kg	1.0	44800
<b>METALS by ICP/SW-846 6010</b>			
Silver, Ag	mg/Kg	1.0	ND
Aluminum, Al	mg/Kg	25	BB <sup>b</sup>
Arsenic, As	mg/Kg	5.0	BB <sup>b</sup>
Boron, B	mg/Kg	1.5	BB <sup>b</sup>
Barium, Ba	mg/Kg	0.50	BB <sup>b</sup>
Beryllium, Be	mg/Kg	0.020	BB <sup>b</sup>
Calcium, Ca	mg/Kg	5.0	NT
Cadmium, Cd	mg/Kg	0.15	0.64
Cobalt, Co	mg/Kg	0.50	BB <sup>b</sup>
Chromium, Cr	mg/Kg	1.0	975
Copper, Cu	mg/Kg	0.50	231
Iron, Fe	mg/Kg	10	BB <sup>b</sup>
Potassium, K	mg/Kg	5.0	BB <sup>b</sup>
Magnesium, Mg	mg/Kg	5.0	BB <sup>b</sup>
Manganese, Mn	mg/Kg	0.10	BB <sup>b</sup>
Sodium, Na	mg/Kg	10	BB <sup>b</sup>
Nickel, Ni	mg/Kg	0.50	268
Lead, Pb	mg/Kg	1.0	74.3
Antimony, Sb	mg/Kg	1.5	BB <sup>b</sup>
Selenium, Se	mg/Kg	2.5	BB <sup>b</sup>
Thallium, Tl	mg/Kg	10	BB <sup>b</sup>
Vanadium, V	mg/Kg	0.15	BB <sup>b</sup>
Zinc, Zn	mg/Kg	5.0	87.1
<b>SEMI-VOA/SW846 8270B</b>			
n-Nitrosodimethylamine	mg/Kg	0.030	ND
Pyridine	mg/Kg	0.030	ND
Aniline	mg/Kg	0.030	ND
bis(2-Chloroethyl) Ether	mg/Kg	0.030	ND
2-Chlorophenol	mg/Kg	0.030	ND
1,3-Dichlorobenzene	mg/Kg	0.030	ND
1,4-Dichlorobenzene	mg/Kg	0.030	ND
Phenol	mg/Kg	0.030	0.14 <sup>c</sup>
1,2-Dichlorobenzene	mg/Kg	0.030	ND
Benzyl Alcohol	mg/Kg	0.030	ND
bis(2-Chloroisopropyl) Ether	mg/Kg	0.030	ND
2-Methylphenol / O-Cresol	mg/Kg	0.030	ND
Hexachloroethane	mg/Kg	0.030	ND
n-Nitroso-di-n-propylamine	mg/Kg	0.030	ND

**1st Quarter Sampling Results**  
**Jan - April 1995**

	UNITS	DETECTION LIMITS	RESULT
Nitrobenzene	mg/Kg	0.030	ND
3/4 Methylphenol / M/P-Cresol	mg/Kg	0.060	ND
Isophorone	mg/Kg	0.030	ND
2-Nitrophenol	mg/Kg	0.030	ND
bis(2-Chloroethoxy) Methane	mg/Kg	0.030	ND
2,4-Dimethylphenol	mg/Kg	0.030	ND
1,2,4-Trichlorobenzene	mg/Kg	0.030	ND
Naphthalene	mg/Kg	0.030	ND
Benzoic Acid	mg/Kg	0.030	ND
2,4-Dichlorophenol	mg/Kg	0.030	ND
4-Chloroaniline	mg/Kg	0.030	ND
Hexachlorobutadiene	mg/Kg	0.030	ND
2-Methylnaphthalene	mg/Kg	0.030	ND
4-Chloro-3-methylphenol	mg/Kg	0.030	ND
Hexachlorocyclopentadiene	mg/Kg	0.030	ND
2,4,6-Trichlorophenol	mg/Kg	0.030	ND
2,4,5-Trichlorophenol	mg/Kg	0.030	ND
2-Chloronaphthalene	mg/Kg	0.030	ND
2-Nitroaniline	mg/Kg	0.030	ND
Acenaphthylene	mg/Kg	0.030	ND
Dimethylphthalate	mg/Kg	0.030	ND
2,6-Dinitrotoluene	mg/Kg	0.030	ND
Acenaphthene	mg/Kg	0.030	ND
3-Nitroaniline	mg/Kg	0.030	ND
Dibenzofuran	mg/Kg	0.030	ND
2,4-Dinitrotoluene	mg/Kg	0.030	ND
Fluorene	mg/Kg	0.030	ND
4-Chlorophenyl-phenylether	mg/Kg	0.030	ND
Diethylphthalate	mg/Kg	0.030	D <sup>a</sup>
4-Nitrophenol	mg/Kg	0.030	ND
4,6-Dinitro-2-methylphenol	mg/Kg	0.030	ND
n-Nitrosodiphenylamine	mg/Kg	0.030	ND
4-Nitroaniline	mg/Kg	0.030	ND
4-Bromophenyl-phenylether	mg/Kg	0.030	ND
Hexachlorobenzene	mg/Kg	0.030	ND
Pentachlorophenol	mg/Kg	0.030	ND
2,4-Dinitrophenol	mg/Kg	0.030	ND
Benzidine	mg/Kg	0.030	ND
Phenanthrene	mg/Kg	0.030	ND
Anthracene	mg/Kg	0.030	ND
Di-n-butylphthalate	mg/Kg	0.030	D <sup>a</sup>
Fluoranthene	mg/Kg	0.030	ND
Pyrene	mg/Kg	0.030	ND
Butylbenzylphthalate	mg/Kg	0.030	ND
Benzo(a)anthracene	mg/Kg	0.030	ND
Chrysene	mg/Kg	0.030	ND
3,3'-Dichlorobenzidine	mg/Kg	0.030	ND

**1st Quarter Sampling Results  
Jan - April 1995**

	<b>UNITS</b>	<b>DETECTION LIMITS</b>	<b>RESULT</b>
bis(2-Ethylhexyl)phthalate	mg/Kg	0.030	D <sup>a</sup>
Di-n-octyl phthalate	mg/Kg	0.030	ND
Benzo(b)fluoranthene	mg/Kg	0.030	ND
Benzo(k)fluoranthene	mg/Kg	0.030	ND
Benzo(a)pyrene	mg/Kg	0.030	ND
Indeno(1,2,3-cd)pyrene	mg/Kg	0.030	ND
Benzo(g,h,i)perylene	mg/Kg	0.030	ND
2,3,4,6-Tetrachlorophenol	mg/Kg	0.030	ND
Azobenzene	mg/Kg	0.030	ND
Dibenz(a,h)anthracene	mg/Kg	0.030	ND
Note a: Constituent detected due to laboratory contamination			
Note b: detected, but below background (BB) or not significantly above background			
Note c: phenol was detected in sampling line 135 at the surface 25 feet from the detonation crater			