USAEHA

U.S. Army Environmental Hygiene Agency

HAZARDOUS WASTE MANAGEMENT CONSULTATION
NO. 37-66-JR11-92
SOIL SAMPLING RESULTS
FORT RICHARDSON, ALASKA
6-7 JULY 1992

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DEPARTMENT OF THE ARMY
US ARMY ENVIRONMENTAL HYGIENE ACTIVITY - WEST
FITZSIMONS ARMY MEDICAL CENTER
AURORA, COLORADO 80045-5001

REPLY TO ATTENTION OF

EXECUTIVE SUMMARY
HAZARDOUS WASTE MANAGEMENT CONSULTATION
NO. 37-66-JR11-92
FORT RICHARDSON, ALASKA
6-7 JULY 1992

1. PURPOSE. Our purpose in performing this survey was to identify any potential soil surface contamination from explosive and propellant destruction operations.

2. CONCLUSIONS. Forty-eight soil samples from the explosive ordnance disposal burning grounds adjacent to Eagle River Flats were analyzed for cyclotetramethylenetetranitramine (HMX); Research Development Explosive (RDX); 2,6-dinitrotoulene (2,6-DNT); 2,4-dintrotoulene (2,4-DNT); and 2,4,6-trinitrotoluene (TNT). All contaminants were detected on the burning grounds. The most prevalent contaminants identified were 2,6-DNT (1.6-2.6 micrograms/gram) and 2,4-DNT (1.8-76.0 micrograms/gram).

DEPARTMENT OF THE ARMY
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REPLY TO ATTENTION OF

HSHB-AW-E (40-5f)

22 January 1993

HAZARDOUS WASTE MANAGEMENT CONSULTATION
NO. 37-66-JR11-92
FORT RICHARDSON, ALASKA
6-7 JULY 1992

1. REFERENCES. None cited.

2. AUTHORITY. USAEHA Form 250-R, Request for Field Service, June 1991.

3. PURPOSE. Our purpose in performing this survey was to identify any potential soil surface contamination from explosive and propellant destruction operations.

4. GENERAL.

a. Survey Personnel.

(1) CPT Charles Hensley, Sanitary Engineer, Environmental Health Engineering Division (EHED), performed this survey.

(2) 2LT Paul Holdsworth, Sanitary Engineer, EHED, assisted CPT Hensley on this survey.

b. Technical Assistance. The U.S. Army Environmental Hygiene Activity-West (USAEHA-W) provides direct support to your installation for a variety of environmental and preventive medicine problems (See Appendix A). To arrange for onsite direct support visits, coordination with USAEHA headquarters for general support services not available from USAEHA-W, or for telephonic assistance, contact the Chief, EHED, USAEHA-W at DSN 943-8100.

5. FINDINGS AND DISCUSSION.

a. Samples were analyzed for cyclotetra-methylenetetranitramine (HMX); Research Development Explosive (RDX); 2,6-dinitrotoulene (2,6-DNT); 2,4-dintrotoulene (2,4-DNT); and 2,4,6-trinitrotoluene (TNT). Forty-eight samples were analyzed. Four of these were field duplicates. The results are provided in appendix B. All constituents analyzed were present above detection levels in one or more samples. The most

prevalent contaminants identified were 2,6-DNT and 2,4-DNT.

b. The material for the field duplicates was obtained by homogenizing the top 4 inches of soil in the sample point hole. The homogenized soil was then used to fill the sample jars. CPT Hensley prepared all field duplicates. Field duplicates are identified as field numbers 2-3, 2-4, 3-5, 3-6, 4-6, 4-7, 5-5, and 5-6.

c. The sampling grid was not precisely laid out and was intended for screening purposes only. Sample points were approximately equally spaced along the transect lines from the baseline upland to the treeline. Appendix C lists the approximate spacing and location of the sample points. The upland transect lines illustrated in figure 1 are based on the 1990 Eagle River Flats (ERF) survey. Upland continuation of the lines at stations 4+00, 6+00, 8+00, 10+00, 12+00, and 14+00 were used to set out the upland transect lines.

Paul M Holdsworth

PAUL M. HOLDSWORTH
2LT, MS
Sanitary Engineer

APPROVED:

GERALD J. PHILLIPS, P.E.
Environmental Engineer
Acting Chief, Environmental Health
Engineering Division

Haz Waste Mgt Consult 37-66-JR11-92, Ft Richardson, AK,
6-7 July 1992

APPENDIX A

TECHNICAL ASSISTANCE

Technical advice and/or consultation on occupational and environmental health problems, to include onsite assistance, may be obtained by telephone from our Activity, DSN 943-3737, or through the specific division numbers below. Please inform your Major Command Consultant if you desire to request onsite assistance from our Activity.

Technical services that we can assist you with are as follows:

1. Entomological laboratory support
2. Environmental laboratory support
3. Hazardous waste management
4. Industrial hygiene management
5. Medical systems safety and health
6. Sanitation and hygiene
7. Wastewater management
8. Water supply management
9. Worksite hazards management
10. Cholinesterase testing management

For assistance in any of the above-listed programs, please call:

Environmental Health and Engineering Division - DSN 943-8100
Field sanitation and hygiene; potable, recreational and wastewater quality; hazardous waste management; document/design reviews.

Industrial Hygiene Division - DSN 943-8881
Industrial hygiene; hazard communication; protective equipment programs; document/design reviews.

Entomological Sciences Division - DSN 943-8090
Pest management surveys and consultations; pest identification; cockroach resistance testing; and computer analysis of pest management documents.

Environmental Laboratory Division - DSN 943-3293
Routine and emergency analysis of water, soil, and occupational health-related samples.

Cholinesterase Laboratory Division - DSN 943-4838
Testing of red blood cell-cholinesterase (RBC-ChE) specimens and quality assurance consultations and training for RBC-ChE labs.

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Many additional environmental services are available from our parent organization, the U.S. Army Environmental Hygiene Agency, and are described in AEHA Pamphlet 40-2, Directory of Services (published annually). We will gladly coordinate any additional services you request and that we cannot provide with our parent organization.

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APPENDIX B

QUALITY CONTROL
AND
ANALYTICAL RESULTS

Haz Waste Consult 37-66-JR11-92, Ft Richardson, AK,
6-7 July 1992

Project Number: 37-66-JR11-92
Sampled Installation: Ft. Richardson, AK
Project Officer: CPT Hensley
AQAD Numbers: B8295 - B8341

Date Received: 13 July 92
Date Extracted: 6 - 12 Aug 92
Date Analyzed: 9 Sept - 18 Oct 92
Procedure: CAB SOP # 108.1
Quality Control Number(s): EX2218 A - E

AQAD NUMBER	FIELD NUMBER	SAMPLE RESULTS (parameters and units)						
		HMX (ug/g)	RDX (ug/g)	2,6-DNT (ug/g)	2,4-DNT (ug/g)	2,4,6-TNT (ug/g)		
B8295	1-1	< 1	< 1	< 1	< 1	< 1		
B8296	1-2	< 1	< 1	< 1	1.8	< 1		
B8297	1-3	< 1	< 1	< 1	< 1	< 1		
B8298	2-1	< 1	< 1	< 1	< 1	< 1		
B8299	2-2	< 1	< 1	< 1	< 1	< 1		
B8300	2-3	< 1	< 1	< 1	< 1	< 1		
B8301	2-4	1.4	< 1	< 1	< 1	< 1		
B8302	2-5	< 1	< 1	2.6	58	< 1		
B8303	3-1	< 1	< 1	< 1	18	< 1		
B8304	3-2	< 1	< 1	< 1	11	< 1		
B8305	3-3	< 1	< 1	< 1	< 1	< 1		
B8306	3-4	< 1	< 1	< 1	< 1	< 1		
B8307	3-5	< 1	< 1	< 1	8.2	< 1		
B8308	3-6	< 1	< 1	< 1	< 1	< 1		
B8309	3-7	< 1	< 1	< 1	6.6	< 1		
B8310	3-8	< 1	< 1	< 1	< 1	< 1		
B8311	3-9	< 1	< 1	< 1	< 1	< 1		
B8312	3-10	< 1	< 1	2.1	40	< 1		
B8313	4-1	< 1	< 1	< 1	< 1	< 1		
B8314	4-2	1.0	3.2	< 1	< 1	< 1		
B8315	4-3	< 1	< 1	< 1	< 1	< 1		
B8316	4-4	< 1	< 1	< 1	9.5	< 1		
B8317	4-5	< 1	< 1	< 1	2.8	< 1		
B8318	4-6	< 1	< 1	< 1	< 1	< 1		
B8319	4-7	< 1	< 1	< 1	< 1	< 1		
B8320	4-8	1.4	12	< 1	< 1	< 1		
B8321	4-9	< 1	< 1	2.0	65	< 1		

COMMENTS: Field number 7-1 was rejected as per project officer as a possible explosive hazard. This sample was returned to AQAD for disposition.

ANALYST(S):	REVIEWED BY:	DATE RESULTS REPORTED:
CMS/MH		23 Oct 92

Haz Waste Consult 37-66-JR11-92, Ft Richardson, AK,
6-7 July 1992

Project Number: 37-66-JR11-92
Sampled Installation: Ft. Richardson, AK
Project Officer: CPT Hensley
AQAD Numbers: B8295 - B8341

Date Received: 13 July 92
Date Extracted: 6-12 Aug 92
Date Analyzed: 9-18 Oct 92
Procedure: CAB SOP # 108.1
Quality Control Number(s): EX2218 A-E

AQAD NUMBER	FIELD NUMBER	SAMPLE RESULTS (parameters and units)						
		HMX (ug/g)	RDX (ug/g)	2,6-DNT (ug/g)	2,4-DNT (ug/g)	2,4,6-TNT (ug/g)		
B8322	4-10	< 1	< 1	< 1	5.6	< 1		
B8323	4-11	< 1	< 1	< 1	< 1	< 1		
B8324	4-12	< 1	< 1	1.7	44	< 1		
B8325	5-1	< 1	< 1	< 1	< 1	< 1		
B8326	5-2	< 1	< 1	< 1	1.7	< 1		
B8327	5-3	< 1	< 1	< 1	< 1	< 1		
B8328	5-4	< 1	< 1	< 1	6.1	< 1		
B8329	5-5	< 1	< 1	< 1	16	< 1		
B8330	5-6	< 1	< 1	< 1	11	< 1		
B8331	5-7	< 1	< 1	1.8	64	< 1		
B8332	5-8	< 1	< 1	2.4	50	< 1		
B8333	5-9	< 1	< 1	< 1	4.0	< 1		
B8334	5-10	< 1	< 1	< 1	< 1	< 1		
B8335	5-11	< 1	< 1	< 1	< 1	< 1		
B8336	6-1	< 1	< 1	1.9	76	< 1		
B8337	6-2	< 1	< 1	< 1	< 1	< 1		
B8338	6-3	< 1	< 1	< 1	2.0	< 1		
B8339	6-4	< 1	< 1	1.6	37	16		
B8340	6-5	< 1	< 1	< 1	< 1	< 1		
B8341	6-6	< 1	< 1	< 1	5.6	< 1		

COMMENTS: Field number 7-1 was rejected as per project officer as a possible explosive hazard. This sample was returned to AQAD for disposition.

ANALYST(S):	REVIEWED BY:	DATE RESULTS REPORTED:
CMS/MH	BC, CGO	23 Oct 92

Haz Waste Consult 37-66-JR11-92, Ft Richardson, AK,
6-7 July 1992

Project Number: 37-66-JR11-92
Sampled Installation: Ft. Richardson, AK
Project Officer: CPT Hensley
AQAD Numbers: B8295 - B8341

Date Received: 13 July 92
Date Extracted: 6-12 Aug 92
Date Analyzed: 9-18 Oct 92
Procedure: CAB SOP # 108.1
Quality Control Number(s): EX2218 A-E

QC NUMBER	SAMPLE RESULTS (parameters and units)						
//////////////////////	HMX (Percent Recovery)	RDX (Percent Recovery)	2,6-DNT (Percent Recovery)	2,4-DNT (Percent Recovery)	2,4,6-TNT (Percent Recovery)	---------	---------
EX-2218 A	115	95	92	92	92		
EX-2218 B	117	92	92	92	92		
EX-2218 C	126	100	92	96	92		
EX-2218 D	120	91	92	94	92		
EX-2218 E	0	0	0	0	0		

Comments: EX-2218 E was a blank soil.

ANALYST(S): CMS/MH CMS/MH | REVIEWED BY: PC RDS | DATE RESULTS REPORTED: 4 DEC 92

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APPENDIX C

SAMPLE LOCATIONS

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Sample Point Spacing

Station	Spacing (meters)	Transect Length (meters)
4+00	35	105
6+00	40	200
8+00	33	325
10+00	22	260
12+00	19	205
14+00	30	175

The first sample along the transect was taken at the spacing distance from the baseline illustrated in the figure.

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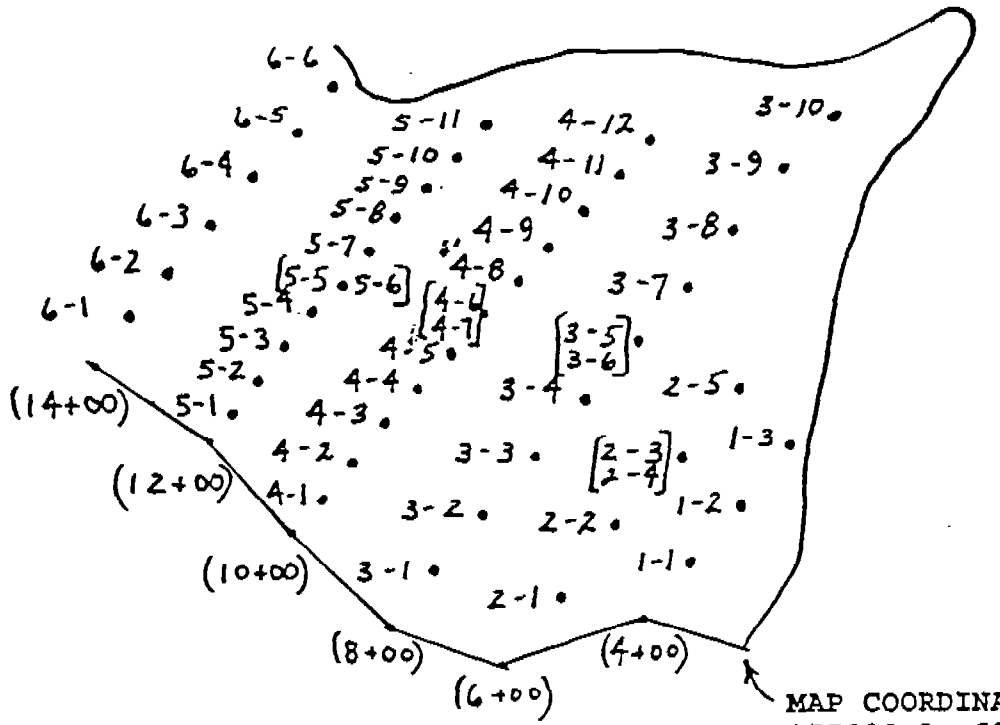
APPENDIX C
SAMPLE POINT LOCATIONS
BURNING GROUNDS
FIGURE C-1



(X+XX): 1990 CRREL
ERP SURVEY
STATIONS