# APPENDIX A

# PREVIOUS RESULTS AT FUZE AND BOOSTER QUARRY PONDS

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Selected Results From

USACHPPM 1996, *Hazardous and Medical Waste Study No. 37-EF-5360-97, Relative Risk Site Evaluation, Ravenna Army Ammunition Plant Ravenna, Ohio*, *28 October – 1 November 1996,* Volume I

1. **Site Name:** RVAAP-16, Quarry Landfill/Former Fuse and Booster Burning Pits/Ponds

2. **Site Summary:** This site is an abandoned quarry that was used to burn sawdust waste from Load Lines 6 and 11 from 1945 to 1949. The site was also used as a landfill for spent brine regenerant and sand filtration backwash from the ground-water treatment plant, fuse and booster assemblies, projectiles, residual ash, and sanitary waste. The existing debris was removed from the site in 1976. There is no indication of regulatory oversight of the transfer process. The ponds were constructed prior to 1987 on the site to receive filter backwash from the potable water system. The ponds were operated as such from 1987 to 1993. Three samples each of surface water and sediment (one from each individual pond) were taken and analyzed for explosives and metals.

3. **Pathway Evaluation:**

    a. **Ground Water**: *Not Evaluated*. There is no ground water associated with this site.
    b. **Surface Water/Human Endpoint**: *High*

        1) **Contaminate Hazard Factor**: 5.85 = *Moderate*

| **Contaminant** | **Max Concentration (µg/L)** | **Standard (µg/L)** | **Ratio** |
|---|---|---|---|
| **Antimony** | 6 | 15 | 0.4 |
| **Arsenic** | 5 | 4.5 | 1.11 |
| **Barium** | 73 | 2600 | 0.03 |
| **Copper** | 69 | 1400 | 0.05 |
| **Lead** | 17 | 4 | 4.25 |
| **zinc** | 98 | 11000 | 0.01 |

**(2) Migration Pathway Factor:** *Potential.* There is no evidence that site contaminants are migrating. However, there are no physical barriers in place to prevent migration.

**(3) Receptor Pathway Factor**: *Identified*. This area is not used for production, but hunters and fishermen have access to the site and use it for recreational activities. Access to the site is not restricted in any manner.

c. **Sediment/Human Endpoint**: *Medium.*

**(1) Contaminant Hazard Factor:** 0.92 = *Minimal*

| Contaminant | Max Concentration (µg/L) | Standard (µg/L) | Ratio |
|---|---|---|---|
| **Arsenic** | 7.13 | 22 | 0.32 |
| **Barium** | 137 | 5300 | 0.03 |
| **Cadmium** | 1.9 | 38 | 0.05 |
| **Chromium** | 40.1 | 3000 | 0.01 |
| **Copper** | 37.6 | 2800 | 0.01 |
| **Lead** | 96.7 | 400 | 0.24 |
| **Mercury** | 5.52 | 23 | 0.24 |
| **Zinc** | 340 | 23000 | 0.01 |

**(2) Migration Pathway Factor:** *Potential.* There is no evidence that site contaminants are migrating. However, there are no physical barriers in place to prevent migration.

**(3) Receptor Pathway Factor**: *Identified*. This area is not used for production, but hunters and fishermen have access to the site and use it for recreational activities. Access to the site is not restricted in any manner.

d. **Surface Water/Ecological Endpoint:** *Not Evaluated*. The surface water at this site does not impact any critical habitat, as defined in the *Primer*.

e. **Sediment/Ecological Endpoint:** *Not Evaluated*. The sediment associated with this site does not impact any critical habitat, as defined in the *Primer*.

**f. Surface Soil:** *Not Evaluated*. There is no surface soil associated with this site.

**4. Final Score.** High (1), two medias of Concern.