May 20, 1999

Mr. Peter Levigne
Headquarters, U.S. Army Soldier Systems Command
Natick, MA 01760-5018

Dear Mr. Levigne:

Thank you for your memorandum requesting that the Environmental Protection Agency (EPA) review data regarding the classification and disposal of unused Flameless Ration Heaters (FRH) for the Army's Meals Ready to Eat (MRE) in the context of the Resource Conservation and Recovery Act (RCRA).

My staff has reviewed the Material Safety Data Sheet (MSDS) prepared by the manufacturer of the FRH, ZestoTherm, Inc., and the June 15, 1998 report prepared by ZestoTherm and Environmental Quality Management. Based on this information and the enclosures in your letter, EPA disagrees with your conclusion that the unused FRH is not a hazardous waste when disposed. Our reasons for this disagreement are as follows:

1. This material reacts violently with water. Thus, the material is a D003 reactive waste. (See 40 CFR 261.23(a)(2).)

2. This material can form potentially explosive mixtures with water. By producing hydrogen gas, particularly where the gas could accumulate, the FRH could be a D003 reactive waste. (See 40 CFR 261.23(a)(3).)

We recognize that an accident involving a single FRH is unlikely. However, like other reactive wastes, an accident such as a violent physical reaction or a fire could result from a number of FRHs being mishandled simultaneously.

Various information that you provided helped us arrive at these conclusions. For example:

1. The warning label on the FRH itself states that "vapors released by the activated heater contain hydrogen, a flammable gas."

2. As stated in the report, the major component of the FRH, magnesium metal, is classified by the Department of Transportation (DOT) as a hazardous material due to its reactive nature with water. FRH skids in excess of 220 pounds are considered hazardous material and shipped accordingly.

3. The report's executive summary states that unused FRH skids should be pretreated prior to disposal to eliminate the need for transport as a hazardous material and use of a DOT-

licenced hauler.

4. Of the 13 treatment, storage and disposal facilities listed in Appendix D of the report, Robert Maxey of my staff spoke with six in detail about the waste. Three landfills stated outright that they would not accept this material as nonhazardous. Two incinerators indicated that the contact had been made on the basis that the waste was nonhazardous. Only one facility indicated that the waste was likely to be nonhazardous.

5. The Occupational Safety and Health Administration defines magnesium as reactive.

6. The MSDS states that the FRH is incompatible with acids, acid chlorides, strong oxidizing agents and that it reacts violently with halogens, chlorinated solvents, ammonium nitrate, carbonates, arsenic, cupric oxide, cupric sulfate, mercuric oxide and inorganic phosphates. While such contact in a properly managed landfill is unlikely, its consequence would be most serious.

The Department of the Army has several options, acceptable to the EPA, for management of unused FRHs:

1. The best option would be the reuse of these materials, since the Army would have a continuing need for them, unless the new FRH (based on phosphorous and calcium chemistry) is adopted. Note that products that have not been used, and which are to be used for their original purpose are generally not wastes under the RCRA hazardous waste regulations. Similarly, if these materials were to be reclaimed, they would likely not be regulated as wastes under RCRA. (See 40 CFR 261.2(c)(3) concerning unused commercial chemical products that are reclaimed.)

2. The FRHs could be incinerated as discussed in the June 15, 1998 report prepared for the Army. This would have to be performed at a hazardous waste incinerator.

3. The MSDS also recommends that the FRHs be reacted with water in accordance with the instructions and then disposed as ordinary waste. Such activities would have to be conducted following all applicable Federal and state regulatory requirements. Under the Federal regulations, depending on the specifics of the situation, the generator may be able to conduct such activities under the generator requirements of 40 CFR Part 262 (particularly 40 CFR 262.34). Alternatively, such activities could be conducted by a third party, following the applicable generator, transportation, and treatment, storage, and disposal facility requirements of 40 CFR Parts 262, 263 and 264/265. Note that in general, states are authorized by EPA to implement the RCRA hazardous waste program. An authorized state's hazardous waste regulations are applicable within the state in lieu of the federal regulations, and states' regulations may be more stringent than the federal regulations. Thus, you should check with the appropriate state agency, or if the state is not authorized, the EPA regional office, to confirm the requirements applicable to your FRH management

activities. Per 40 CFR 268.40, these materials would have to meet the "DEACT" standard and meet the 268.48 Universal Treatment Standards prior to any land disposal.

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The disposal of spent FRH materials, following normal use to heat a MRE, is not disposal of a hazardous waste. The FRH is an excellent means of providing hot meals to soldiers in the field and we are sympathetic to the waste disposal problem associated with unused FRHs. It is also important that these materials be disposed in an environmentally sound manner. Please contact my office or call Robert Maxey of my staff at 703-308-7273 if you have additional questions.

Sincerely,

Robert Tonetti, Chief
International and Special Projects Branch
Office of Solid Waste

cc: Ollie Fordham, EMRAD
Robert Maxey, HWID