

October 7, 2002

Ronald C. Slager, Jr.
Manager, Environmental Restoration
Raytheon Company
1001 Boston Post Road
Marlborough, MA 01752

Re: Former Raytheon site in Wayland

Dear Mr. Slager,

Here are my comments to date on Raytheon's proposed plans to clean up (or, in certain cases, to NOT clean up) its former facility site in Wayland.

As preface, I want to thank your team for a more ambitious investigation and proposed cleanup program, along with a more informative public session than I saw previously. I still detect shortcomings in the documentation, handouts, and story, for example in these misleading statements: "...no human health or public safety risks are present at the site"; "[a]ssessment activities to date indicate soil concentrations are below regulatory standards" (October 2002 "Fact" Sheet); and "these regulatory limits [for pertinent toxic substances] were determined by highly qualified experts" (oral assertion). I surmise that such nonsense emanates from Raytheon's PR department, that well-oiled saboteur of intelligent public discussion.

My comments below are limited to three particular issues. Please don't assume that I acquiesce to Raytheon's position on issues I don't address here; not unlike DEP, EPA, and most ordinary people, I am constrained by limited resources and accordingly must constrain my focus.

(1) SINGLE VERSUS MULTIPLE REPLACEMENT OF WETLANDS

Raytheon's net-benefit analysis of three wetland-refurbishment scenarios indicates positive net-benefit for the first and second and negative net-benefit for the third scenario. Raytheon apparently proposes to reject its third scenario -- refurbishment of all wetland with PCBs over the regulatory limit -- due to an assertedly negative net-benefit. I hereby counterpropose ADDITIONAL scenarios with improved net-benefit using the Company's own method of reckoning.

All three Company scenarios assume excavation and SINGLE replacement (in the same location) of various wetland subparcels. However, where a Massachusetts builder proposes to disturb wetlands, DOUBLE replacement is typically required. This means that the builder must convert non-wetland to wetland to the extent required to fulfill the replacement ratio. Builders have to do this even when disturbing an UNPOLLUTED wetland. I believe the reason for this requirement is that single-replacement wetlands provide "services" much less efficiently than established wetlands for a period of many years -- exactly the same phenomenon Raytheon finds and relies on in its single-replacement-based net-benefit analysis.

Raytheon opportunistically proposes to leave uncleaned almost five acres of wetlands with excessive PCB levels, on the rationale that its single-replacement scheme has a negative net-benefit. Meanwhile, sufficient land area is available within the pertinent parcel to consider double-replacement and perhaps even triple- or quadruple-replacement. Adding multiples of wetland-replacement is a guaranteed path to not only positive net-environmental-benefit but also elimination of all excess PCB levels in soil. We need this. Raytheon should pursue this path.

(2) POURING OR FORCING PERMANGANATE INTO THE GROUND

Raytheon's enthusiasm for pouring or forcing permanganate into the ground (and ground water) instead of cleaning up the TCE its employees dumped there is certainly understandable. Apparently it would save a lot of money and work. The challenge we must pose to this is the same challenge we often fail to pose regarding any product or scheme: (a) prove its effectiveness, and (b) prove its safety.

Not unlike Raytheon's latest missiles and radar systems, its permanganate scheme is pretty doggone new, and I would suggest, inadequately proven. If I understand correctly, test data indicates an effectiveness rate of approximately 84%; but we need an effectiveness rate of 99.97% to abate TCE from Raytheon's 17,000 ppb hot spot down to 5 ppb (the regulatory limit in drinking water). Accordingly, effectiveness remains unproven.

On the safety question, Raytheon proposes to convey permanganate in liquid form, employing approximately a 40% concentration (if I understand correctly), and simply assumes negligible concentration post-reaction; but the 1999 Journal of Toxicology article, full text of which I forwarded separately, documents fatal poisoning from ingestion of a mere 0.01% concentration of potassium permanganate. Accordingly, safety remains unproven.

(3) REGULATORY LIMITS VERSUS BACKGROUND AS THE TREATMENT TARGET

A modest proposal: To minimize harm to public health, I would propose that PCBs, TCE, and all other known pollutants be targeted for abatement to bona fide background levels, not merely to today's politically bought-and-paid-for regulatory limits.

Respectfully submitted,

Stan Robinson
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cc: Others Involved.