

25 March 2008

SUBJECT: Lake Superior Barrel Health Consultation/March 08
MDH / ATSDR

I have a few minor editorial comments on the Lake Superior MDH/ATSDR report that was forwarded for comment on 21 March 2008.

P.3 - Bullet #1 - I believe the eye witness reports were referenced in the 1977 report that the barrels required being perforated (p 2 of the 1977 report vs. the 1991 report referenced here) I'd give credit to the earlier report.

P.4 - Underwater searches- The story of the Hiawatha is originally found in the 1977 report, not the 1991 report (see news clipping from the Pioneer Press of Nov 5, 1976). A second source in the same report is a letter from Dan Rau of Save Lake Superior Association which details the interview with the boat pilot in greater degree.

P.5 - 1977 - The effort to locate barrels also included a team of Army Divers.

P.6 - 1993 - The search effort was contracted by MPCA - not USACE. Also note that the "5 disposal sites identified" by the MPCA have not all been confirmed as barrel disposal sites.

P.6 - A side note to the last PP - the "plausible" scenario detailed here has already been validated by the tug logs discussed earlier in the report (p4 item #6) which indicated that 496 barrels were disposed of off Knife Island. The 496/1437 (34.5%) represents a large portion of the total disposals. When you consider that the three disposal sites sampled hold at least 350 barrels - the search effort and log entry may have identified over 50% of the disposals attributed to the U.S. Army in Lake Superior.

P.9 - Not to take away from the conclusion here- but we did observe significant "scour" erosion in the vicinity of the barrels found at the Talmadge River site - that is- it appears that 6"-1' of sediments that may have been around the barrels when originally dropped has been transported away from that site- the video of these barrels show the container to be resting on a small compacted section of sediment that made some barrels appear to be suspended off the lake bottom - I believe the barrel hitting the bottom compacted a small section of sediment that has resisted scour better than the surrounding lake bottom.

The reverse was true at the 6.6 mile site (incinerated parts) - deposition of sediments was occurring in this area. Divers were wading through chest deep sediments to get to barrels in this location.

Underwater lake currents exist in Lake Superior and depending on the location of each disposal - the current may be burying some barrels under a fine mud/clay layer. Strong sonar readings which remain visually unconfirmed sites should be investigated to determine what the bottom conditions are like at each site- In some cases the "targets"

might be below a silt layer. The strong sonar hits in our 1990 study just north of the city intakes were inspected via ROV but as the submersible approached each strong sonar hit- there was nothing "visual" to inspect. Whether this is iron ore, the disposal of tracer rounds in the 40's or eroded barrels - only a subsurface inspection would be able to verify the identity of the sonar "hit".

P.10 - The shooting of barrels was identified in earlier reports (1977) - not just in 1994.

P. 11 - Purple liquid - I received a call from a woman who identified herself as a former plant employee after she viewed a TV broadcast on the subject of purple discharges from the barrels. She recalled some classified "ditto" masters might have also been placed in the barrels. A ditto master was the predecessor to the copy machine that relied on a typed document fixed to a rotating drum. The back of the master document was peeled off to reveal a purple "negative" that was exposed to a copy fluid then pressed against a fresh sheet to produce a copy of the master. She believed that some of these masters may have been placed in the barrels. If exposed to water - they would have leached a purple liquid off the document backing. We did not find any dittos in the first barrels recovered, but it might explain the discharge that was observed from some barrels.

P. 12- The historical record does not support that radioactive material was ever placed in the barrels, nor have any studies done so far on 50+ barrels monitored underwater by EPA + 9 recovered barrels indicate ANY evidence of radioactive content. We did monitor the barrels for radioactivity as a safety precaution during recoveries.

P. 13 - I note in your second to last paragraph that the exposure risk to people is low, but I will also offer that risks to future recovery crews might also be considered. While I am referring to work hazards (diving, heavy sling loads, handling of eroded containers etc) that personnel would be exposed to during higher risk activities. We had divers in hyperbaric decompression chambers after lengthy recovery dives in freezing waters and we also navigated some 5-6' lake swells during our side scan sonar runs. Lake Superior is a dangerous place to work in. Conditions change rapidly and water temperatures are severe. The inherent risks with any proposed recovery operation needs to be considered as well. Managing the risks of working at depth with supplied air, around heavy objects and intermingling air, sonar, anchor and lift cables may pose more risks to human health than these barrels ever will. I hope that any future study efforts are completed without injury to any of the participants.

Thanks for the opportunity to review the document.

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