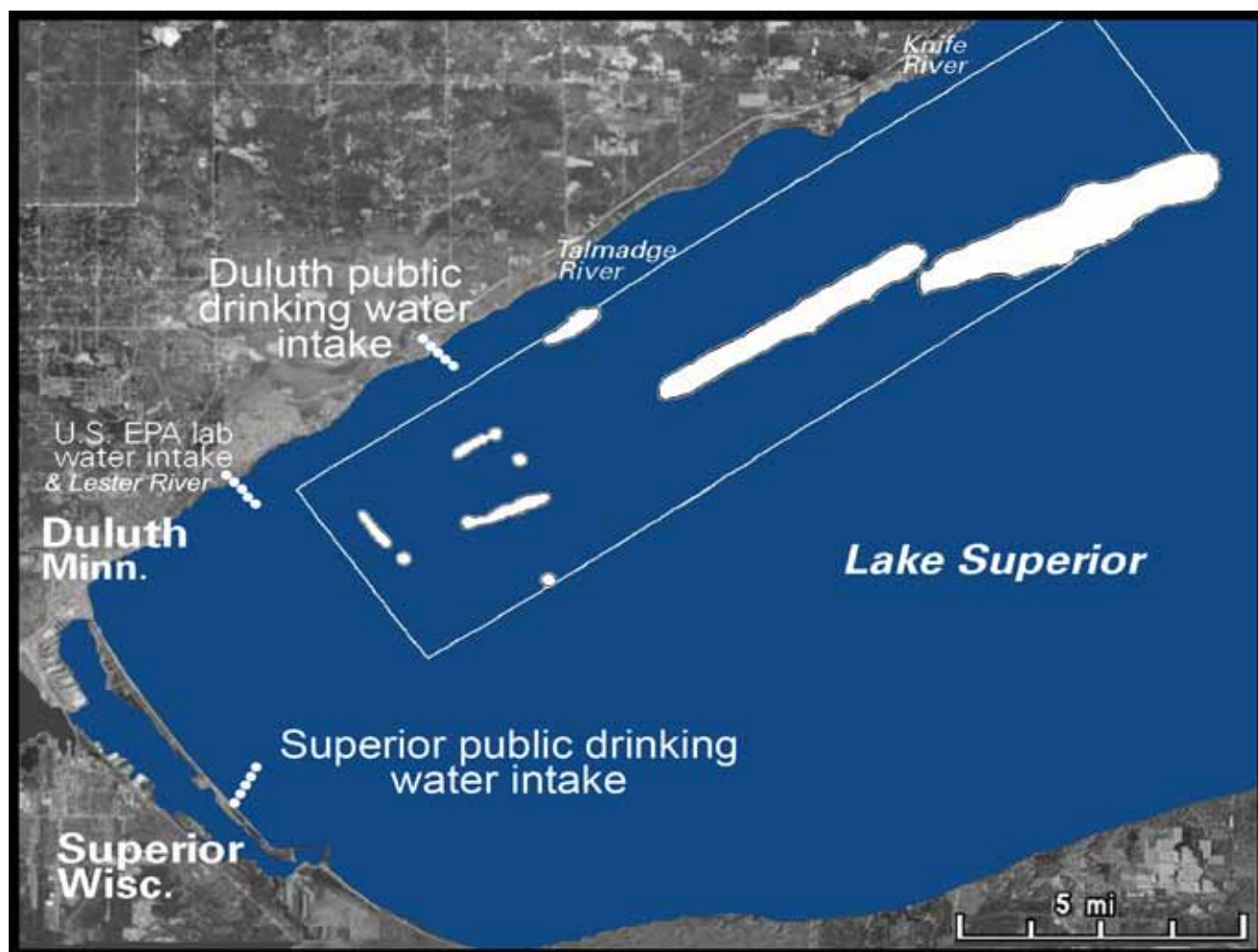


# Drinking Water at Risk

## Toxic Military Wastes Haunt Lake Superior

A Nukewatch Special Report, January 2013



Graphic by Bonnie Urfer, Nukewatch

Pictured in white, some of the Honeywell, Inc. military waste dumping areas, spread across more than 50 square miles, created by the Army Corps of Engineers between 1957 and 1962. At least 1,457 barrels weighing over 350 tons from Honeywell's Twin Cities Army Ammunition Plant in Arden Hills, Minnesota — containing at least 17 toxic chemicals — were secretly dumped at night from Army Corps barges.

*Sources: National Oceanic and Atmospheric Administration, Loran-C map #14966, Sept. 22, 1990 • Oceaneering Technologies, Inc., "Lake Superior Barrel Investigation," Sept. 11-19, 1993 • Army Corps of Engineers, Report of Findings, Lake Superior Classified Barrel Disposal Site, Defense Environmental Restoration Program for Formerly Used Defense Sites, Project No. E05MN025501, Aug. 1991 & July 1994, Fig. 11 • Minne-*

*sota Pollution Control Agency, June 7, 1990 • Hazard Control, Inc., "Contractor's Final Report: Underwater Search Lake Superior Classified Barrel Disposal Site," Dec. 10, 1990, p. 20 • U.S. Environmental Protection Agency, National Air and Radiation Environmental Laboratory, "Radiological Survey of Drums Disposed Into Lake Superior, July 18-22, 1995," Fig. 1, "Location of Drums Surveyed During July 1995," Sept. 15, 1995.*

# Drinking Water at Risk

## Toxic Military Wastes Haunt Lake Superior

**“U.S. Army Corps of Engineers report ... that barrels floated away from the barge during one dumping event, and had to be shot so that they would leak and sink. This would have caused a larger dispersal pattern for dumped barrels than would otherwise be expected.”**

— Minnesota Department of Health, “Health Consultation,” March, 14, 2008

**“I guess we’re most surprised about the PCBs. We simply don’t know why (PCBs) were in the barrels that were tested. What this means in the long-term for public health, for the lake’s ecosystem ... for additional PCBs in fish, we still haven’t determined.”**

— Bob Swenson, Minnesota Pollution Control Agency, Sept. 22, 1994

**“It is the MPCA’s belief that without examination of all the barrel dump sites, we cannot assure that Lake Superior is adequately protected.”**

— Charles Williams, Commissioner, Minnesota Pollution Control Agency, to U.S. Senator Dave Durenberger, April 27, 1992

---

## Some of the 17 Toxins Found in Military Waste Barrels Recovered in June 1994, in parts-per-billion (ppb)

Contaminant	Army Corp analysis	Minn. PCA analysis	MN Dept. of Health Recommended Limit	EPA Maximum Contaminant Level
Benzene	18 ppb	~ *	5 ppb	5 ppb
PCBs	~	590 ppb	0.04 ppb	0.5 ppb
Cadmium	85 ppb	150 ppb	4 ppb	5 ppb
Lead	200 ppb	1100 ppb	~	15 ppb (action req. level)
Arsenic	23 ppb	~	3 ppb	10 ppb
Chromium	~	37 ppb	100 ppb (Cr VI)	100 ppb
Barium	0	2500 ppb	2000 ppb	2000 ppb
Acetone	200 ppb	~	700 ppb	700 ppb

**Sources:** Minnesota Department of Health, “Health Consultation: Barrels Disposed in L. Superior,” March 14, 2008, p. 8 • MPCA, Results Table, Ron Swenson, Sept. 19, 1994 • and U.S. Army Corps of Engineers, Report of Findings, Defense Environmental Restoration Program for Formerly Used Defense Sites: “L. Superior Classified Barrel Disposal Sites,” Project No. E05MN025501-Vol. II, Sept. 1994.

\* ~ Indicates that no agency analysis was done.

### NUKEWATCH

A project of the Progressive Foundation  
a 501(c)(3) non-profit organization  
which publishes *Nukewatch Quarterly*

740A Round Lake Road

Luck, WI 54853

715-472-4185

Email: [nukewatch1@lakeland.ws](mailto:nukewatch1@lakeland.ws)

Web: [nukewatchinfo.org](http://nukewatchinfo.org)

ISSN: 1942-6305



*Lake Superior photo by John LaForge*

## Between 1957 and 1962 the U.S. Army Corps of Engineers secretly dumped at least 1,457 barrels of hazardous waste into Lake Superior

along the North Shore near Duluth, Minnesota.<sup>1,2</sup> The military waste — between 350 and 440 tons — came from Honeywell, Inc.'s Twin Cities Army Ammunition Plant (TCAAP) in Arden Hills, Minnesota. All but a few dozen of the drums are still in the water, and less than 600 have ever been located.

High rates of cancer and other debilitating disease among people drinking water from Lake Superior, as documented by the Centers for Disease Control and Prevention (CDC),<sup>3</sup> could partly be the result of this covert and reckless government-sponsored waste dumping. One radiation survey by the U.S. Environmental Protection Agency (EPA), an independent submarine-based radiation examination and formal records from the Minnesota Pollution Control Agency (MPCA) show that 17 of Honeywell's toxic chemicals, including benzene, chromium, PCBs and radiation-emitting materials, were dumped into Lake Superior by the Army Corps (see chart, opposite).

The dumping area was named a federal Superfund site in 1977, although the threat posed by the toxins hidden in the barrels has been given a low priority.<sup>4</sup>

Corps of Engineers' barges used in the nighttime dumping were constantly in motion, peppering between 50 and 75 square miles of lake bottom with barrels.<sup>5</sup> Up to 16 separate dump sites are beneath 100 to 400 feet of water.<sup>6</sup> The Army Corps' attitude toward public drinking water was so wildly reckless that, as the Minnesota Health Department reported in 2008, "[B]arrels floated away from the barge during one dumping event, and had to be shot so that they would leak and sink. This would have caused a larger dispersal pattern for dumped barrels than would otherwise be expected."<sup>7</sup>

The unconscionable practice of profound and deliberate endangerment of fresh water by the military has a long history. Over 600 tons of surplus World War II munitions were thrown into the same area of Lake Superior by the U.S. Army in 1945.<sup>8</sup>

The dumping scandal was discovered in 1968, when fisherman Stanley Sivertson accidentally snagged six of Honeywell's barrels. Some of the nearly 1,500 barrels are "perilously close" to Duluth's drinking water intake, according to former U.S. Representatives Jim Oberstar of Minnesota and Dave Obey of Wisconsin.<sup>9</sup> A formal memo to the U.S. Environmental Protection Agency by the late John Pegors, who was then Director of the MPCA District 1 in Duluth, states unequivocally that some of the barrels are in a "dump within 1 mile of Duluth water intake."<sup>10</sup>

Beginning in 1976, Pegors spent 17 years struggling unsuccessfully to have all the barrels located and removed. In those days, Honeywell claimed publicly and erroneously that the barrels "absolutely did not contain radioactive or hazardous materials."<sup>11</sup> The MPCA even declared publicly that Honeywell wasn't permitted to use radioactive materials at TCAAP.

In an impassioned letter to U.S. Rep. Philip E. Ruppe, R-Mich., Pegors wrote of "the urgent need for someone to adequately address the potentially serious public health and water quality effects of the unidentified barrels in Western Lake Superior."<sup>12</sup>

Contradicting assurances by the Army Corps of Engineers and Honeywell that the barrels only held "classified metal shavings," all seven drums retrieved in 1994 were found to contain 17 toxins — a deadly mix including benzene, PCBs, lead, cadmium, barium, arsenic, toluene, chromium, and some materials emitting radiation.<sup>13</sup> PCBs were found in concentrations up to 14,000 times greater than the Minnesota State recommended allowable limit for drinking water.

Controversy surrounds the question of whether the barrels contain hexavalent chromium, or chromium-6 which the U.S. EPA has determined is a more potent human carcinogen than arsenic, benzene or PCBs.<sup>14</sup> Hexavalent chromium is so ferociously toxic — see the film "Erin Brockovich" — it causes chromosomal aberrations, gene mutations, birth defects and cancer. An unspecified type of chromium was among the 17 heavy metals found in barrels recovered by the MPCA.<sup>15</sup> Chromium-6 was used heavily by Honeywell at

TCAAP — so heavily that the company monitored its floor drains for it three times a week in Building 502.<sup>16</sup> Building 502 was the source of all of the 1,457 barrels dumped into Lake Superior.

## Minnesota Pollution Control Agency “Either mistaken or untruthful”

In addition, radiation being emitted by some of the barrels indicates the presence of carcinogenic radioactive waste. Independent submarine operator Harold Maynard said in a sworn affidavit, and many times since, that during an underwater survey in his sub *Lakediver*, the two Geiger counters he used near one site registered radioactive emissions. Captain Maynard told Nukewatch in May 2008 that officials with the Army Corps kept him from returning to the same location to verify his readings. “And,” he asked, “what reason would I have to lie?”<sup>17</sup>

In 1994, the MPCA officially halted its barrel investigation after having succeeded in positively locating only 215 of the 1,457 barrels.<sup>18</sup> Because only 14.8 percent of the total has ever been positively located by the MPCA, and since the contents of only nine barrels has ever been analyzed, grave concerns about drinking water contamination have hardly been addressed.

That same year, the U.S. Nuclear Regulatory Commission (NRC) disclosed that both Honeywell and 3M, Inc. held licenses at TCAAP for handling radioactive materials — uranium, plutonium and thorium — in Building 502 during the years the waste dumping occurred.<sup>19</sup>

The news prompted the Duluth *News-Tribune* to slam the MPCA which had for years, it said, been “either mistaken or untruthful.”<sup>20</sup> Following the NRC’s revelation, the EPA announced on May 23, 1995 that it would repeat a limited barrel survey, scanning for radiation. Then, after scanning only 24 barrels, the EPA declared that they did not emit radiation, thereby muddying its 1990 findings of radioactivity being emitted from four of them — but easing the way to halt further investigation.<sup>21</sup>

## “Priority Hazard” in 1985 Minn. Pollution Control Agency Assessment

In his June 23, 1985 report to the U.S. EPA titled “Potential Hazardous Waste Site Preliminary Assessment,” John Pegors called the barrels a “priority hazard,” and warned of

“contamination of Western Lake Superior, the primary drinking water source in Minnesota, Wisconsin, Michigan cities in [the] USA, [and] Ontario, Canada.”

Pegors stated unequivocally that at least one of the barrel dumps is “within one mile of [the] Duluth water intake.”<sup>22</sup> Seven years later, MPCA Commissioner Charles Williams echoed Pegors concern, writing to then U.S. Senator Dave Durenberger on April 27, 1992, “It is the MPCA’s belief that without examination of all the barrel dump sites, we cannot assure that Lake Superior is adequately protected.”

This point is especially salient in view of the latest plans by the Red Cliff Band of Lake Superior Chippewa, discussed below, to severely limit its retrieval of several dozen barrels.

## Partial Timeline of Dumping Scandal

**1957 to 1962:** Approximately 1,457 barrels of Honeywell, Inc. military waste secretly dumped by the U.S. Army Corps of Engineers at night in Lake Superior near Duluth, Minnesota<sup>23</sup>

**1968:** Duluth fisherman Stanley Sivertson accidentally nets six 600-750-pound barrels.<sup>24</sup>

**1976:** In August, MPCA Region 1 Director John Pegors and J. Pruchan, Environmental Specialist for the Michigan Dept. of Natural Resources, demand that the U.S. government positively identify the contents of the barrels.<sup>25</sup>

**1976:** The Duluth *Herald* reports on “a rumor that the barrels ... might contain radioactive waste materials.”<sup>26</sup>

**1976:** A Nov. 11 letter to MPCA Executive Director Peter Gove from the EPA’s Duluth Lab Director Donald Mount

reported “a change in the water characteristics” and noted that “animals have stopped spawning” and that “other behavioral abnormalities have cropped up.”

**1977:** The Army Environmental Hygiene Agency acknowledges 1957 as the start of the Lake Superior dumping, starting with six barrels (two tons) of toxicants left from battery production.<sup>27</sup>

**1985:** In a report to U.S. Environmental Protection Agency, the MPCA declares the barrel wastes a “priority hazard.”<sup>28</sup>

**1985:** A June 23 Army Corps chart says that 206 barrels — weighing a total of 200,000 pounds — were dumped at Knife River.



Lake Superior Day walk, 2010. Photo by Bonnie Urfer

**1988:** Argonne National Laboratory records refer to “Radiation Data and Lake Superior Rad Dumping.”<sup>29</sup>

**1990:** The U.S. EPA conducts an underwater radiological survey of several barrels and reports finding four drums emitting gamma radiation “above background” levels.<sup>30</sup>

**1990:** In its cover letter to the above report, the EPA warns that its radiation survey only registered gamma radiation, noting that the presence of pure alpha and beta radiation emitters could not be identified.

**1992:** On April 27, MPCA Commissioner Charles W. Williams says in a letter to U.S. Senator Dave Durenberger, R-Minn., “It is the MPCA’s belief that without examination of all the barrel dump sites, we cannot assure that Lake Superior is adequately protected.”

**1993:** MPCA sonar search locates 415 “targets,” and only 215 are positively identified as barrels.<sup>31</sup>

**1994:** In September, the MPCA declares an end to further consideration of risks posed by chemicals in the barrels. The agency’s Ron Swenson says, “We don’t believe there’s any short-term threat to human health... what this finding means in the long term ... we still haven’t determined.”<sup>32</sup>

**1994:** Reversing decades of denials, the MPCA and the NRC report that Honeywell and 3M Company used radioactive uranium, plutonium and thorium at TCAAP’s Building 502 beginning in the late 1950s.<sup>33</sup>

**1995:** The EPA is forced by the revelation of Honeywell’s radioactive materials permits to conduct a second radiation survey, after which it declares 24 drums radiation-free.<sup>34</sup> Again, EPA scanned for gamma radiation only.

**1995:** Herb Bergson, then Mayor of Superior, Wis., announces plans for a lawsuit to force Honeywell to pay for a more comprehensive investigation of the barrel dumps.<sup>35</sup> The suit never materializes.

**2008:** The federal Centers for Disease Control and Prevention’s report on health problems near dozens of contaminated sites in the Great Lakes finds residents of Northern Minnesota and Wisconsin have unusually high rates of stroke, heart disease, colon cancer, breast cancer and infant mortality.<sup>36, 37</sup>

**2008:** The Minnesota Health Department’s “Health Consultation” of March 14 is clogged with errors and concludes incoherently that, “[T]he risks of detrimental exposures to people from these barrels are unquantifiable, but low.”<sup>38</sup>

**2009:** The Red Cliff Band of Lake Superior Chippewa announces plans to retrieve 70 barrels in the summer and examine their contents, using large grants from the Defense Department. The recovery plans are postponed.<sup>39</sup>

**2010:** Red Cliff renews its announcement of plans to retrieve up to 70 barrels,<sup>40</sup> but the effort, which focuses on only three of six dump sites, is put off until 2011.<sup>41</sup>

**2011:** In August, Red Cliff again postpones its barrel recovery for another year.<sup>42</sup>

**2012:** In April, Red Cliff announces plans for summertime recovery of 70 barrels along with water and sediment sampling from near the drums.<sup>43</sup> Recovery project begins July 30.

## U.S. EPA and Independent Investigator Detect Radiation

In 1990, the U.S. EPA conducted a radiological survey of two dozen barrels, four of which were found to be emitting radiation. The agency’s final report by health physicist Mark O. Semler says, “During the sampling of drums ... three were noted to have a slightly higher summation of [gamma radiation] counts.” The report notes that, “Drum #11 had slightly elevated gamma levels” [and] “an increase over background at drum #11.” The report says of the 24 drums monitored, numbers “33, 37 and 38 had marginally elevated gamma exposure rates.”<sup>44</sup>

Only the presence of radioactive materials can explain these emissions, but in 2009 the MPCA’s Bob Swenson told Nukewatch he thought paint on the barrels might emit gamma radiation.<sup>45</sup>

Significantly, Semler warned in his cover letter to the EPA report that the radiation monitoring equipment used by his team was limited and incapable of detecting alpha or beta radiation. Semler wrote in part:

“Because the underwater probe is insensitive to the presence of alpha and/or beta radiation, no conclusions concerning the presence or absence of radionuclides which are pure alpha or beta emitters can be made. I would, therefore, recommend that as you open any recovered drums, you have available an alpha survey meter and a G-M survey meter with a thin window that is sensitive to beta radiation.”<sup>46</sup>

A similar warning was made by MPCA officials in a May 24, 1995 email titled “mystery barrel radiation” sent from Jeff Cooley, an air quality specialist in Duluth’s MPCA office to Tim Musick, then an MPCA senior pollution control inspector. Cooley wrote in part:

“If alpha [radiation emitting] material is leaking from any of these barrels it will not be picked up on a gamma scan... One would have to take water or sediment samples in the vicinity of the barrels, filter the samples, and examine the filtrate for alpha radiation. I would consider this a prudent precaution in order to assure the safety of wild life, the food chain, and human drinking water supplies.”

Tim Musick wrote later the same day to Robert Cross, another senior MPCA inspector, concluding, “In summary, only performing a gamma scan (which would be the easiest) may not provide enough information about the potential food chain/ingestion radiation concerns of the public.”

The EPA’s 1995 repeat scan of several submerged barrels reportedly failed to detect radioactive emissions, but the survey scanned only for gamma radiation.<sup>47</sup>

Captain Harold Maynard, the submarine operator who was hired to investigate one of the dump sites, spoke with Nukewatch on May 9, 2008. Maynard repeated his sworn statement from 1990 that from inside his submarine, his Geiger counters registered radiation near one barrel.<sup>48</sup>

Capt. Maynard complained that Army Corps supervisor Bob Dempsey “has been denying that ever since,” and said that Mr. Dempsey would not allow him to return with his sub to the same place to verify his reading.<sup>49</sup>

In its April 12, 1995 news report, KBJR TV in Duluth aired its interview of Capt. Maynard by reporter, now news director, Barbara Reyelts (See: <[youtube.com/watch?v=uUk9jcmEv\\_Y](http://youtube.com/watch?v=uUk9jcmEv_Y)>). Reyelts also interviewed Chuck Williams, then the Director of the MPCA, who, she reported “... admits they got a radioactive reading, but says the whole thing is being blown out of proportion.” Capt. Maynard replied to Director Williams telling Reyelts, “... now one of us is a liar, and I’ve got no reason to lie.”

News reports at the time noted that “Higher-than-normal radioactivity levels that the Army Corps called ‘inconclusive,’ were detected....”<sup>50</sup>

### “Lake Superior Rad Dumping: Note from Honeywell”

Other EPA, MPCA and independent reports include direct references to radioactive materials in the drums:

1) An Argonne National Laboratory report on the TCAPP cites a 1955 Honeywell document this way: “Date 2/7/55 — Radiation Data and Lake Superior Rad Dumping: Note from Honeywell P.O. (4/24/78); Monthly Historical Report (7/10/50).”<sup>51</sup>

2) In 1985, the MPCA’s Pegors wrote in a formal report to the EPA: “Description of substances possibly present, known, or alleged: Uranium-234, Ur-235, Ur-238.”<sup>52</sup> In the same report, Pegors warned, “Waste states, quantities and characteristics [could be]: Toxic, corrosive, radioactive, persistent, soluble, flammable, reactive” and that “potential exists for most of these wastes to be in the barrels.”<sup>53</sup>

3) In 1990, the MPCA’s senior investigator Bob Cross wrote that the characteristics of the barrels’ contents could be “toxic, reactive, radioactive....”<sup>54</sup>

4) Mike Stich, owner of Hazard Control Inc. of Minneapolis (now, All Safe), was hired by the Army Corps to help conduct a seven-day barrel search in October 1990. In an Aug. 6, 1991 letter to Pegors at the MPCA, Stich



**The Lake Superior Chippewa’s barrel project succeeded in recovering an undisclosed number of barrels in August 2012. Photo: Bob King, Duluth News Tribune**

wrote, “From the very beginning I was suspicious. When the sub captain’s [Maynard’s] Geiger counter went off and he surfaced, he was very excited and was sure (at the time) that he had indeed detected something radioactive. The Corps downplayed (and even physically shielded him from the news people) the Geiger counter event. ...”<sup>55</sup>

Stich concluded, “I’m of the opinion that Harold [Maynard], the sub pilot, did in fact detect something, he was very excited and almost scared when he surfaced that day.”<sup>56</sup>

With so many references to radiation being emitted from some of the barrels, it is proof of professional incompetence that the Minnesota Department of Health concluded in its 2008 “Health Consultation,” that “Despite one unexplainable and unconfirmed report of radioactivity near the barrels, there is no reason to believe that the barrels contained radioactive wastes.”<sup>57</sup> and even repeated the falsehood that Honeywell had no license to work with radioactive materials until after 1967.

### Minnesota PCA and Health Department Rewrite, Misstate Historical Record

The MPCA supervisor who oversaw its investigation into the dumping was Ron Swenson, now an MPCA municipal water resources supervisor. Public statements by Swenson, along with MPCA information online, give the impression of a bureaucracy working to misinform the public and trivialize the danger.

When interviewed in 2005 for the MPCA journal *Minnesota Environment*, Mr. Swenson officially misstated the agency’s and his own written record. Swenson said, “Nothing hazardous or radioactive has ever turned up in any of the searches or analyses.”<sup>58</sup> This falsehood is repeated on the MPCA’s web site which, along with other misinformation about the barrels, includes the above article. This statement contradicts Swenson’s official “Results table” of 1994, in which he reported that 17 toxic contaminants were found in hazardous quantities in all seven barrels recovered in June 1994 by the agency.

For PCBs, the state’s “recommended allowable limit” in drinking water is 0.04 parts-per-billion, and the amount found in the barrels was a staggering 590 ppb.<sup>59</sup> In one Duluth *News-Tribune* article, “Barrels contain toxins,” Swenson sounded alarmed. “I guess we’re most surprised about the PCBs. We simply don’t know why (PCBs) were in the barrels that were tested,” he said. Swenson then noted ominously, “What this means in the long-term for public health, for the lake’s ecosystem ... for additional PCBs in fish, we still haven’t determined.”<sup>60</sup>

The MPCA’s current Fact Sheet on

the subject, “Facts about the Lake Superior Barrels,” also contradicts Swenson’s 2005 misstatement in *Minnesota Environment*, noting “Analysis of ... the barrels indicated the presence of 17 contaminants including metals, volatiles, semi-volatiles and polychlorinated biphenyls.”<sup>61</sup>

When asked on Jan. 21, 2009, whether the MPCA would correct the Minnesota Environment error, Swenson said he had been misquoted by Ralph Pribble, an MPCA public information officer. Swenson said that he’d leave corrections up to Mr. Pribble who summed up the MPCA’s position in 1995, saying, “We feel we know everything there is to know now about these barrels.”<sup>62</sup>

Likewise, official documentation of radiation coming from some barrels is denied in press statements and MPCA materials. Flatly contradicting the EPA’s 1990 radiation survey, the 2008 fact sheet claims that, “... no radioactive material in the barrels was detected.” Four years after the report was published, the MPCA’s Ron Swenson, told the *Duluth News-Tribune*, “We’re very cognizant of the possibility” that some barrels hold radioactive waste, Swenson said. “But it’s not showing up in any of the documents. ... We can’t find it in the records. And there’s been no radioactivity measured so far.”<sup>63</sup> These falsehoods were repeated by an unnamed MPCA official who told the *Duluth News-Tribune* Dec. 3, 1994 that there is no documentation that any of the barrels contain radioactive waste.<sup>64</sup>

The agency broadcast the same disinformation in a September 1995 “Fact Sheet on the Lake Superior Barrels,” which says of the EPA’s survey, “No radiation levels were monitored that would indicate the presence of nuclear waste in the barrels.”<sup>65</sup>

Recall that the U.S. EPA’s final report says “Drums 33, 37, and 38 had marginally elevated gamma [radiation] exposure rates,” and “Drum 11 had slightly elevated gamma levels.”<sup>66</sup>

Swenson’s disinformation or misquote in the 2005 *Minnesota Environment*, and its amplification on the MPCA’s website, are not the first time that MPCA officials have misinformed the public about threats posed by the barrels.

For 18 years — from 1976 to 1994 — the agency insisted that no military contractor in Minnesota was using radioactive material. But in 1994, the MPCA and the U.S. Nuclear Regulatory Commission revealed that Honeywell, since 1955, and 3M since 1958, were both licensed to do just that. As the *Duluth News-Tribune* reported at the time, “It’s now clear that the [Minnesota] PCA at the time was either mistaken or untruthful.”<sup>67</sup>

Inept or corrupt, either way the MPCA’s and EPA’s decision not to look further into the dumping made sure they wouldn’t find anything.



**Walk for the Lake, Lake Superior Day, July 2010.** Photo by Bonnie Urfer

The Minnesota State Health Department’s 2008 “Consultation” on the matter also minimizes the potential health and environmental hazards posed by the discarded poisons and boldly denies the factual record. To take just one example, “According to records from the Atomic Energy Commission and the Nuclear Regulatory Commission, Honeywell did not use radioactive isotopes at their TCAAP facility prior to 1967....”<sup>68</sup> This disinformation, stated twice in the report, is representative of the paltry and sloppy research done by the department. The 1994 disclosure that Honeywell had licenses beginning in the 1950s to use radioactive materials — in the building the barrels came from at TCAAP — was widely broadcast in the news.<sup>69</sup>

The Health Department consultation concludes in part that, “Chemical analyses of water or sediment samples in this area is not recommended unless there is some indication that there is a significant source of contamination in the area.”

The same year, 2008, the CDC offered some deadly serious “indication” that there are significant sources of contamination in the area. The CDC’s study found that residents of St. Louis and Carlton counties have unusually high rates of stroke, and people in Douglas County had higher than average rates of stroke, heart disease, colon cancer, breast cancer and infant mortality.

## **Red Cliff Band of Lake Superior Wins Major Grants, Begins Recovery of “Sample” of Barrels, 2012 Retrieval Avoids Known Dumps**

The Red Cliff Band of Lake Superior Chippewa’s tribal government is not satisfied with the MPCA’s 1994 conclusion that “We don’t believe there’s any short-term threat to human health.”<sup>70</sup>

The Red Cliff reservation is on the South Shore of the lake near Bayfield, Wisconsin, about 70 miles down-current from the nearest barrel dump. Fish from Lake Superior make up a large part of the diet of the Band's members and relatives. On July 30, 2012 the Band's Tribal government's employees and contractors began a recovery of a sampling of up to 70 barrels in its effort to identify what threat the barrels' contents may pose to Great Lakes water and its fishery.

Because the dumping took place in Ceded Territory established by treaty, Red Cliff's "Barrel Project" began an extensive investigation in 2004 and has succeeded in winning large federal grants — \$105,000 in 2005, \$603,000 in 2008, and \$1.3 million in 2009 — through the Native American Lands Environmental Mitigation Program.<sup>71</sup>

The Band's environmental department produced a 1,509-page "Work Plan"<sup>72</sup> which is both a review of the hazards posed by the toxins in the barrels and a case study in the complexities of retrieving dangerous materials from underwater.

In 2008, Red Cliff hired environmental engineers EMR of Duluth and the survey craft *Blue Heron* from the University of Minnesota, and they used sophisticated sonar to search for barrels. According to the Band's April 21, 2009 press release, they identified 591 barrels — twice as many as earlier efforts — leaving the remaining 866 unaccounted.

Red Cliff announced in 2009 that it would remove up to 70 barrels in the summer of 2010 and examine the contents. The Band intends to collect enough data to perform a human health and ecological risk assessment using guidelines established for federal Superfund sites.

Initially, the retrieval project was repeatedly put off. Tracy Ledder, Red Cliff's Environmental Programs Director, told Nukewatch that a "federal review" of the Red Cliff Work Plan had demanded extra precautions. In Sept. 2010, Red Cliff announced it would retrieve barrels in 2011.

Again, the project was put off another year because, as engineer Scott Carney of EMR told Nukewatch in Aug. 2011, Red Cliff and EMR were "still jumping through eight million hoops." Laura Armagast, Red Cliff's Water Resources Program Manager, explained that "The Work Plan will be revised because of comments from the Explosive Safety Board and Army Corps of Engineers technicians."<sup>73</sup>

In April 2012, the band again announced its intention to recover 70 barrels during the summer and to conduct water quality and sediment sampling near certain barrel dumps.

Scientific sampling and analysis of sediment near the barrels has never been done. But underwater photographs of corroded and damaged drums indicate that sediment testing may prove a good source of information about the barrels' contents and their dispersal, so the Band's commitment to testing sediments near barrels was cheered by environmentalists. Greg Price of Cornucopia, Wis. who has compiled hundreds of barrel documents and records,<sup>74</sup> told Nukewatch, "Sediment testing is what many people have been demanding for 25 years."

## Red Cliff Recovery Plan Excludes Key Dump Sites, One-Third of Barrels

Red Cliff's publicly announced barrel sampling plan has raised questions about its scope. The Band says barrels will be retrieved from only three of the six well-known dump areas — from the Lester River, Talmadge River and Sucker River sites. Other documented dumping grounds at Knife River, also called Knife Island, Shoreview Road and French River have been eliminated from consideration. The reason, according to Red Cliff and EMR, is that their 2008 sonar search failed to positively identify barrels anywhere else.

EMR says that of the 591 drums or "targets" it located, none were positively identified at the Knife River/Knife Island site, even though it is one of the most well documented sites. In its brochure "Lake Superior Barrels Investigation," EMR says this and two other areas have been "eliminated as likely dump sites" because "Sonar and visual scans in these locations identified no barrels." Rather, EMR now calls Knife River/Knife Island and the other previously-located dump areas a "debris field."

The written record says otherwise, and indicated in fact that over one-third of the 1,457 barrels were dumped at Knife Island/Knife River alone. Army Corps employee Bob Dempsey who supervised recovery of a few barrels, wrote to the Minn. Health Department in 2008, "... tug logs discussed earlier in the report ... indicated that 496 barrels were disposed of off Knife Island. The 496/1437 (34.5%) represents a large portion of the total disposals."<sup>75</sup>

At least seven government reports identify Knife River/Knife Island as a significant dump, including a June 23, 1985 Army Corps of Engineers chart that says 206 barrels — weighing a total of 200,000 pounds — were disposed of there, identifying it as a "fifth" dump. This chart is in the Army's 1991 "Report of Findings, Lake Superior Classified Barrel Disposal Site."<sup>76</sup>

In addition to the 206 barrels named by the Corps, a June 28, 1985 office memorandum by the MPCA's Pegors says, "The fourth, fifth, and sixth dumps were made at deeper depths in the vicinity of Knife Island near the mouth of the Knife River."<sup>77</sup> Another agency memo from Lauri Lipponen to Pegors, dated Sept. 16, 1976, specifies that tug boat "*Marquette* had done the towing and the barrels had been disposed of in 300 feet of water at a point approximately 18 miles distant in the vicinity of Knife River."<sup>78</sup> This is a reference to the log entry that reports 496 drums, over 1/3 of the total, were dumped near Knife River. The entry reads, "25-26 Sep[t.] 1962 - 496 Barrels disposed using Tug *Marquette* off Knife River approximately 18 miles from Duluth Harbor."<sup>79</sup>

The Minnesota Health Department's 2008 report notes that, "Three additional tugs have also been identified (tug *Marquette* [*sic*], *Barlow* and Tender *Ashland*); however, the 1959-1962 log of the *Marquette* no longer exists. The U.S. ACE recommended that 'Logs for the Tug *Barlow* and Tender *Ashland* should be located if additional search efforts are attempted in the future.' (U.S. Army Corps of Engineers



1994)<sup>80</sup> The “Daily Report of Operations” of the tug boat *Lake Superior* for May 25, 1962 — the Corps’ own tug boat log — says the tug would conduct, “Towing BK-8380 [a barge] loaded with Army Ordnance scrap to dump off Knife Island & return to Duluth....”<sup>81</sup> The same log notes that the *Lake Superior*, “Left V.Y. [vessel yard] with 8380 at 6:00 AM. Dumped Army Ordnance material off Knife Island at 8:30 AM and continued on with 8380 to Two Harbors....”<sup>82</sup>

Official MPCA reports, like its October 2008 “Facts about the Lake Superior Barrels,”<sup>83</sup> say the Knife River dump was found by the agency’s large-scale 1993 side-scan sonar project, and that it was “one of three new sites identified by the sonar.” This area, the MPCA wrote, “...was about three miles east of Knife Island at a depth of 400 feet.”<sup>84</sup> The MPCA’s website’s “Google earth” map shows that dozens of the barrels it located are at Knife River.<sup>85</sup>

The record leaves no doubt that barrels were dumped near Knife River, although they may have corroded and/or degraded into what EMR calls a “debris field.” The question remains: Why have Red Cliff and EMR decided not to look more closely into what’s there?

When asked about its intention to ignore three well-documented dump sites, Ledder explained that Red Cliff had considered the questions raised by Nukewatch and instructed EMR to re-analyze its sonar search records. EMR then reported to the Band that “debris” is all that can be seen at the areas around Knife River, Shoreview Road, and French River, Ledder said. Asked about tug boat captains’ logs that record dumping in at least six places, Ledder told Nukewatch, “We have issues with the tug boat logs. They don’t seem accurate. It’s possible that the tug boat records were incorrect.”<sup>86</sup> Ledder didn’t explain the basis alleging that tug boat skippers’ logs might be in error.

Long-time barrel researchers Greg Price of Cornucopia, and Dan Conley of Duluth have suggested that hundreds of the drums may have contained corrosive materials that could have destroyed the steel drums, leaving their contents to disperse or settle into sediments.

In view of the barrels dumped at Knife River, where four drums have previously been recovered, it is troubling that Red Cliff, EMR and the Army Corps did not make a concerted effort to retrieve a sampling of them. The “debris field” identified by EMR certainly includes some of the 496 barrels that were disposed of there, and even if the drums are obscured by sediments (and by other wastes discarded during decades of the shipping industry’s bad habits) Honeywell’s military waste includes material that must be removed from the bioregion’s principle drinking water source.

If corrosive contents in the Knife River barrels degraded and collapsed the steel drums, sediments left by the materials may indicate what was inside. To learn the complete story of the dumping scandal, it is essential that sediment sampling and testing be undertaken in all the places where barrels have been dumped. And before Honeywell and the Corps can be let off the hook for their reckless endangerment, the words of former MPCA Commissioner Charles Williams should be

heeded — “[W]ithout examination of all the barrel dump sites, we cannot assure that Lake Superior is adequately protected.”

## Latest Analysis Still Secret

The Band announced last August that it had successfully recovered a sampling of the waste barrels and that their contents will be analyzed by an independent laboratory reported to be Spectrum Analytical of Tampa, Florida. The Band has not disclosed the number of drums it actually recovered, but on Oct. 16, 2012 Red Cliff Environmental Director Melanee Montano told Nukewatch that the week-long recovery effort “didn’t reach the goal” of retrieving 70 barrels. It had at least recovered “enough to do some analysis,” and some sediments were removed for analysis as well, Montano said.<sup>87</sup>

The Band’s six months of silence on its recovery project moved the *News Tribune* to complain in the Jan. 6, 2013 headline, “What’s in the barrels? After tests, band yet to say.” The two-part story said Red Cliff officials “remained mum on details,” although it reported, contrary to what Ms. Montano told Nukewatch October 16, that the effort “brought up 70 barrels.”

The Band’s self-limiting recovery effort which avoided well-established dump sites raises questions of undue influence on the part of the Pentagon and the Army Corps which retain some influence on the scope of the investigation. The Jan. 6 *News Tribune* report notes that Kirk Engelbart of the Army Corps and Mike Fix, a U.S. Army environmental engineer, are both “involved in the project.”

Montano told the newspaper Jan. 6 and Nukewatch Jan. 10 that results of the lab analysis would be publicized in late January 2013. □

---

## Notes

<sup>1</sup> Col. John P. Piercy, Department of the Army, Environmental Hygiene Agency, in a June 30, 1977 letter to Commander, Army Armament Material Readiness Command, re “Environmental Hazards of Waste Disposal in Lake Superior,” discusses “chemical toxicity of some 1440 drums (55 gallons) [*sic*] of steel and aluminum parts, consisting of six dumps at the same site during the period, 1957-62.”

<sup>2</sup> Department of the Army, Environmental Hygiene Agency, “Environmental Hazards of Waste Disposal in Lake Superior,” HSE-EW-A, June 30, 1977; John Pegors, Director, MPCA Region 1, letter to Donna Porter, Site Response, DSHW, June 28, 1985

<sup>3</sup> Centers for Disease Control, “Great Lakes Areas of Concern Reports,” Dec. 2008, <[www.atsdr.cdc.gov/grtlakes/aocreport/2008.html](http://www.atsdr.cdc.gov/grtlakes/aocreport/2008.html)>; “Experts say CDC report on lake pollution and health problems misleading,” *Duluth News-Tribune*, Sept. 6, 2008; John Myers, “Group says Feds are hiding data,” *Duluth News-Tribune*, Feb. 8, 2008

<sup>4</sup> EPA’s 1997 Superfund list included the entry, “Duluth, Lake Superior Barrel Site, Lake Superior 75 Sq. Miles, EPA Site Number MN0001109669”; EPA’s Superfund Information Systems CERCLIS database for Oct. 12, 2006 identifies “Barrel Dump Duluth Superior harbor,” in “Lake Superior Near City H2O Intake,” as “EPA ID: MNE980679344”; “Dumped barrels plot thickens,” *Duluth Herald*, Nov. 2, 1976

<sup>5</sup> Charles W. Williams, Commissioner of the MPCA, and Col.

James Scott, Corps of Engineers, in their Dec. 22, 1994 letter to the Duluth *News-Tribune*, say “nearly 50 square miles”.

<sup>6</sup> Charles Laszewski, “Lake floor a landfill for Army,” St. Paul *Pioneer Press*, Nov. 28, 1993; & “Depths of Lake Superior ‘pretty disgusting,’” Duluth *News-Tribune*, Nov. 29, 1993: [Bob] “Cross [of the MPCA spills unit] said a former Corps supervisor reported that there were at least 16 disposal sites.”

<sup>7</sup> Minnesota Department of Health, “Health Consultation: Barrels Disposed in Lake Superior by U.S. Army,” March 14, 2008, p. 10 <<http://www.health.state.mn.us/divs/eh/hazardous/sites/stlouis/lakesupbarrels.html>>

<sup>8</sup> “Vast Pile of Cartridges Dumped Into Lake Here,” Duluth *News-Tribune*, Sept. 28, 1945, p. A1

<sup>9</sup> Rep. James L. Oberstar and Rep. David R. Obey, in a Feb. 3, 1995 letter to EPA Administrator Carol Browner, wrote in part: “Some of these dump sites for the barrels are according to EPA’s preliminary assessment, perilously close to the intake pipes for some of these communities.”

<sup>10</sup> EPA, Potential Hazardous Waste Site, Preliminary Assessment, Site Information and Assessment, Site Number 9806-19344, John Pegors, Director, MPCA Region 1, June 23, 1985

<sup>11</sup> “PCA calls for analysis of dumped waste barrels,” Duluth *Herald*, and (Washburn, Wis.) *Chequamegon Sun*, Aug. 20, 1976

<sup>12</sup> John Pegors, Director, MPCA Region I, undated letter to U.S. Rep. Philip E. Ruppe, R-Mich., circa 1977, p. 4; U.S. Rep. Philip E. Ruppe, letter to Col. Forrest T. Gay III, Army Corps of Engineers, Nov. 5, 1976 <sup>13</sup> *Ibid*, n. 7, Minn. Dept. of Health, “Health Consultation,” March 14, 2008, p. 8; John Myers, “Barrels contain toxins,” Duluth *News-Tribune*, Sept. 22, 1994; MPCA, “results table,” Sept. 19, 1994

<sup>14</sup> Interfaith Community Organization v. Honeywell Intern, Inc., 263 FSupp.2d 796, 816 (D.N.J., 2003)

<sup>15</sup> SERCO Laboratories, Preliminary Laboratory Analysis Report No. 45734, July 29, 1994, pp. 3, 4 & 54

<sup>16</sup> U.S. Army Toxic and Hazardous Materials Agency, “Installation Assessment of Twin Cities Army Ammunition Plant,” Report No. 129, Oct. 1978, pp. 21 & 30

<sup>17</sup> Nukewatch telephone interview with Capt. Harold Maynard (Ret.), May 9, 2008

<sup>18</sup> MPCA map of the 215 barrels, at <<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/surface-water/basins-and-watersheds/lake-superior-basin/lake-superior-barrels.html?menuid=&missing=0&redirect=1>> (click on Lake Superior Barrel Investigation Map)

<sup>19</sup> John Myers, “Danger in the depths: Fears resurface over lake barrels,” Duluth *News-Tribune*, Nov. 20, 1994, and “Barrels will stay where they are,” Duluth *News-Tribune*, Dec. 3, 1994

<sup>20</sup> John Myers, “Danger in the depths: Fears resurface over lake barrels,” Duluth *News-Tribune*, Nov. 20, 1994

<sup>21</sup> John Myers, “EPA will search for barrels: New tests to focus on radioactivity,” Duluth *News-Tribune*, May 23, 1995; & Duluth *News-Tribune*, “EPA testing barrels for radioactivity,” July 18, 1995

<sup>22</sup> EPA, Potential Hazardous Waste Site, Preliminary Assessment, Site Information and Assessment, Site Number 9806-19344, John Pegors, MPCA, June 23, 1985

<sup>23</sup> Col. John P. Piercy, Department of the Army, Environmental Hygiene Agency, in his June 30, 1977 letter to Commander, Army Armament Material Readiness Command, re “Environmental Hazards of Waste Disposal in Lake Superior,” discusses “chemical toxicity of some 1440 drums (55 gallons) of steel and aluminum parts, consisting of six dumps at the same site during the period, 1957-62”; Department of the Army, Environmental Hygiene Agency, “Environmental Hazards of Waste Disposal in Lake Superior,” HSE-EW-A, June 30, 1977

<sup>24</sup> “PCA calls for analysis of dumped waste barrel,” Duluth *Herald*, Aug. 20, 1976

<sup>25</sup> Duluth *News-Tribune*, Nov. 3, 1976

<sup>26</sup> “Dumped barrels plot thickens,” Duluth *Herald*, Nov. 2, 1976

<sup>27</sup> Department of the Army, Army Environmental Hygiene Agency, Aberdeen Proving Ground, “Environmental Hazards of Waste Disposal in Lake Superior,” letter to Commander, Armament Material Readiness Command, by Col. John P. Piercy, June 30, 1977, p. 1

<sup>28</sup> John Pegors, Director, MPCA Region 1, report to the U.S. EPA, “Potential Hazardous Waste Site Preliminary Assessment,” June 23, 1985

<sup>29</sup> Argonne National Laboratory, Energy & Environmental Systems Division, “Installation Restoration Program: Preliminary Assessment of the Twin Cities Army Ammunition Plant,” Feb. 1988, “references from the ANL records search, #4,” Feb. 7, 1955 References, Sec. [page] 10.1

<sup>30</sup> Mark O. Semler, U.S. EPA, National Air and Radiation Environmental Laboratory, “Final report of results from survey of drums in Lake Superior,” Nov. 27, 1990, pp. 3, 5 & 11

<sup>31</sup> MPCA map: <<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/surface-water/basins-and-watersheds/lake-superior-basin/lake-superior-barrels.html?menuid=&missing=0&redirect=1>> (click Lake Superior Barrel Investigation Map)

<sup>32</sup> John Myers, “Barrels contain toxins,” Duluth *News-Tribune*, Sept. 22, 1994

<sup>33</sup> John Myers, “Danger in the depths: Fears resurface over lake barrels,” Duluth *News-Tribune*, Nov. 20, 1994

<sup>34</sup> John Myers, “EPA will search for barrels: New tests to focus on radioactivity,” Duluth *News-Tribune*, May 23, 1995; & Duluth *News-Tribune*, “EPA testing barrels for radioactivity,” July 18, 1995

<sup>35</sup> John Myers, “Bergson to announce plans for barrel lawsuit,” Duluth *News-Tribune*, Feb. 16, 1995

<sup>36</sup> John Myers, “Group says Feds are hiding data,” Duluth *News-Tribune*, Feb. 8, 2008

<sup>37</sup> Centers for Disease Control, “Great Lakes Areas of Concern Reports,” Dec. 2008, <[www.atsdr.cdc.gov/grtlakes/aocreport/2008.html](http://www.atsdr.cdc.gov/grtlakes/aocreport/2008.html)>; “Experts say CDC report on lake pollution and health problems misleading,” Duluth *News-Tribune*, Sept. 6, 2008

<sup>38</sup> *Ibid*, n. 7, Minn. Dept. of Health, “Health Consultation,” March 14, 2008, p. 13, <[www.health.state.mn.us/divs/eh/hazardous/sites/stlouis/lakesupbarrels.html](http://www.health.state.mn.us/divs/eh/hazardous/sites/stlouis/lakesupbarrels.html)>

<sup>39</sup> Red Cliff Native American Lands Environmental Mitigation Program committee, “update and information release,” April 15, 2009; Mike Simonson, KUWS radio, April 30, 2009

<sup>40</sup> John Myers, Duluth *News-Tribune*, July 28, 2009

<sup>41</sup> Red Cliff Native American Lands Environmental Mitigation Program committee, “update and information release,” Sept. 7, 2010; John LaForge, “Lake Superior Barrels: Don’t Look, Don’t Find,” Duluth *Reader Weekly*, Sept. 23, 2010

<sup>42</sup> Laura Armagast, Red Cliff Water Resources Program Manager, telephone interview with author, Aug. 9, 2011; John LaForge, “Lake Superior Barrel Dumps: Rotten to the Corps,” Duluth *Reader Weekly*, Aug. 25, 2011

<sup>43</sup> Red Cliff Environmental Department, News Release, Apr. 18, 2012; “Red Cliff Band to help recover 70 barrels from L. Superior,” Duluth *News-Tribune*, April 24, 2012

<sup>44</sup> Mark O. Semler, “Final report of results from survey of drums in Lake Superior,” U.S. EPA, National Air and Radiation Environmental Laboratory, Nov. 27, 1990, pp. 3, 5 & 11

<sup>45</sup> Bob Swenson, MPCA, telephone interview with Nukewatch, Jan. 21, 2009

<sup>46</sup> Mark O. Semler, “Final report of results from survey of drums in Lake Superior,” U.S. EPA, National Air and Radiation Environmental Laboratory, cover letter to final report, Nov. 27, 1990

<sup>47</sup> “EPA testing barrels for radioactivity,” Duluth *News-Tribune*, July 18, 1995

<sup>48</sup> Captain Harold W. Maynard (Ret.), sworn affidavit, Chemung County, New York, Oct. 27, 1990

<sup>49</sup> Author’s telephone interview with Harold Maynard, May 9, 2008

<sup>50</sup> Julie Gravelle, “Barrels dragged to shallower part of lake:

Corps' role unclear," *Duluth News-Tribune*, Nov. 1, 1990

<sup>51</sup> Argonne National Laboratory, Energy & Environmental Systems Division, "Installation Restoration Program: Preliminary Assessment of the Twin Cities Army Ammunition Plant," Feb. 1988, References from the ANL Records Search, #4, Feb. 7, 1955 References, Sec. 10.1

<sup>52</sup> John Pegors, Director, MPCA Region 1, "Potential Hazardous Waste Site Preliminary Assessment," EPA form #2070-12 (7-81), Part 1, Site Information and Assessment, MN Site No. [EPA Facility ID] 980679344, June 23, 1985

<sup>53</sup> *Ibid.* Part 2 - Waste Information, Identification

<sup>54</sup> Bob Cross, Project Team Leader, MPCA Solid and Hazardous Waste Div., "Site Safety and Sampling Plan," Nov. 13, 1990, p. 1

<sup>55</sup> Mike Stich, Hazard Control, letter to John Pegors, Aug. 6, 1991

<sup>56</sup> *Ibid.*

<sup>57</sup> *Ibid.* n. 7, Minn. Dept. of Health, "Health Consultation," March 14, 2008, p. 13; <<http://www.health.state.mn.us/divs/eh/hazardous/sites/stlouis/lakesupbarrels.html>>

<sup>58</sup> Ralph Pribble, "Mystery barrels not so mysterious," MPCA's *Minnesota Environment*, Fall 2005/Winter 2006, p. 16

<sup>59</sup> MPCA, "Results table," Sept. 23, 1994, p. 1

<sup>60</sup> John Myers, "Barrels contain toxins: Humans are not in danger," *Duluth News-Tribune*, Sept. 22, 1994

<sup>61</sup> MPCA Fact Sheet, "Facts about the Lake Superior Barrels," October 2008, p. 3. <[www.pca.state.mn.us/publications/c-w2-01.pdf](http://www.pca.state.mn.us/publications/c-w2-01.pdf)>

<sup>62</sup> Chuck Frederick, "Fight over barrels in lake pops up again," *Duluth News-Tribune*, Jan. 21, 1995

<sup>63</sup> John Myers, "Danger in the depths: Fears resurface over lake barrels," *Duluth News-Tribune*, Nov. 20, 1994

<sup>64</sup> "Barrels will stay where they are," *Duluth News-Tribune*, Dec. 3, 1994

<sup>65</sup> MPCA, "Fact Sheet on the Lake Superior Barrels," Sept. 1995, p. 2

<sup>66</sup> Mark O. Semler, U.S. EPA, National Air and Radiation Environmental Laboratory, "Final report of results from survey of drums in Lake Superior," Nov. 27, 1990, pp. 3, 5 & 11

<sup>67</sup> John Myers, "Danger in the depths: Fears resurface over lake barrels," *Duluth News-Tribune*, Nov. 20, 1994

<sup>68</sup> *Ibid.* n. 7, Minn. Dept. of Health, "Health Consultation," March 14, 2008, pp. 3 & 13

<sup>69</sup> John Myers, "Danger in the depths: Fears resurface over lake barrels," *Duluth News-Tribune*, Nov. 20, 1994, and "Barrels will stay where they are," *Duluth News-Tribune*, Dec. 3, 1994

<sup>70</sup> John Myers, "Barrels contain toxins," *Duluth News-Tribune*, Sept. 22, 1994

<sup>71</sup> "Another search for Lake Superior barrels," *Duluth News-Tribune*, April 29, 2005

<sup>72</sup> Red Cliff Band of Lake Superior Chippewa, Environmental Program, Lake Superior Barrels Project, Remedial Investigation and Feasibility Study: <<http://redcliff-nsn.gov/Departments/EPA/barrels.htm>>

<sup>73</sup> Laura Armagast, telephone interview with author, Aug. 9, 2011; John LaForge, "Lake Superior Barrel Dumps: Rotten to the Corps," *Duluth Reader Weekly*, Aug. 25, 2011

<sup>74</sup> News clippings and public correspondence, compiled by G. Price, 100+ pages, \$17, from UPS Store, 23 W. Central Entrance, Duluth, MN 55811

<sup>75</sup> Bob Dempsey, letter to Minnesota Health Department about its March 14, 2008 Health Consultation, Mar. 25, 2008 <[www.health.state.mn.us/divs/eh/hazardous/sites/stlouis/lshbccomments.pdf](http://www.health.state.mn.us/divs/eh/hazardous/sites/stlouis/lshbccomments.pdf)>

<sup>76</sup> U.S. Army Corps of Engineers, "Lake Superior Barrel Dumps" in "Report of Findings, Lake Superior Classified Barrel Disposal Site," Defense Environmental Restoration Program for Formerly Used Defense Sites, Project No. E05MN025501, August 1991, "ENCL 2, June 23, 1985"

<sup>77</sup> John Pegors, Director, MPCA Region 1, office memorandum, June 28, 1985

<sup>78</sup> Lauri Lipponen, MPCA, office memorandum to John Pegors, Director, MPCA Region 1, Sept. 16, 1976

<sup>79</sup> Minnesota Dept. of Health, "Health Consultation: Barrels Disposed in Lake Superior," Mar. 14, 2008, p. 4 <<http://www.health.state.mn.us/divs/eh/hazardous/sites/stlouis/lakesupbarrels.html>>

<sup>80</sup> *Ibid.*

<sup>81</sup> Captain's log of tug boat *Lake Superior*, May 25, 1962, "H-6," a "Daily Report Of Operations," in "Report of Findings, Lake Superior Classified Barrel Disposal Site," DERP for Formerly Used Defense Sites, Project No. E05MN025501, Aug. 1991

<sup>82</sup> U.S. Army Corps of Engineers, "Daily Report of Operations," in "Report of Findings, Lake Superior Classified Barrel Disposal Site," DERP for Formerly Used Defense Sites, Project No. E05MN025501, Aug. 1991

<sup>83</sup> <[www.pca.state.mn.us/publications/c-w2-01.pdf](http://www.pca.state.mn.us/publications/c-w2-01.pdf)>

<sup>84</sup> MPCA, "Facts about the Lake Superior Barrels," October 2008, p. 3, <[www.pca.state.mn.us/publications/c-w2-01.pdf](http://www.pca.state.mn.us/publications/c-w2-01.pdf)>

<sup>85</sup> MPCA Google earth map: <[pca.state.mn.us/water/basins/superior/lshbarrels.html#map](http://pca.state.mn.us/water/basins/superior/lshbarrels.html#map)>

<sup>86</sup> Tracy Ledder, Red Cliff Environmental Programs Director, telephone interview with author, Sept. 9, 2010

<sup>87</sup> Telephone interview with author, Oct. 16, 2012

## NUKEWATCH

RESEARCHED AND WRITTEN BY JOHN LAFORGE

DESIGNED AND EDITED BY BONNIE URFER

*This special report is available and will be updated on our web site where there are additional documents, articles, reports and commentary — particularly with respect to radiation.*



Lake Superior from Park Point, Duluth, Minnesota.

Photo by John LaForge

