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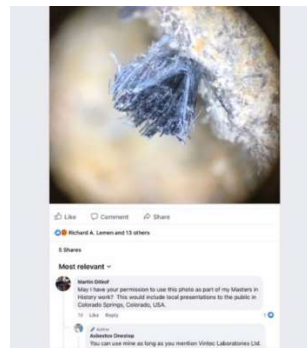
THESIS WORKING TITLE

SOUTH AFRICAN BLUE ASBESTOS POLLUTING THE LAKE MICHIGAN SHORELINE: HISTORY MEETS SCIENCE

Asbestos is a generic reference to a group of hydrated mineral silicates that can be separated into filaments. The six commercial forms include five amphiboles varieties: (1) Actinolite; (2) Anthophyllite; (3) Amosite (brown asbestos); (4) Crocidolite (blue asbestos); and (5) Tremolite, and one variety of serpentine mineral - Chrysotile (white asbestos).¹ Historically, most of these minerals were mined in other countries and then imported to the United States for processing or incorporation into manufactured products.² Although asbestos had some usefulness in historic times, the first evidence of it being used consistently in commerce is 1830.³ For blue asbestos, the first known mining in South Africa occurred during 1893.⁴ Blue asbestos is known for high tensile strength and its acid resistance.⁵ Its health-related hazards are significant.



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¹ Office of Toxic Substances, "Life Cycle of Asbestos in Commercial and Industrial Use including Estimates of Releases to Air, Water and Land, Final Inhouse Report," *U.S. Environmental Protection Agency*, GCA-TR-79-73-G. (Bedford, MA, February 1982), p 27.

² Ibid, 28.

³ "The Penny Magazine," *The Society for the Diffusion of Useful Knowledge* (England: October 26, 1839), p 411.

⁴ Jock McCulloch, "Surviving blue asbestos: mining and occupational disease in South Africa and Australia," *Transformation Issue 65* (South Africa and Australia, 2007), 68-93, 71.

⁵ Oliver Bowles, *The Asbestos Industry*. (Washington D.C.: United States Government Printing Office, 1955), p15.

⁶ Origination Unknown.

⁷ Printed with the permission on Vintec Laboratories Ltd.

As is involved in this paper's discussion concerning blue asbestos, 97% of the blue asbestos global output was mined in South Africa with most of the remaining amount mined in Wittenoom in Western Australia.⁸ Much of the blue asbestos imported into the United States, including that used at the Johns-Manville facility in Waukegan, Illinois, was incorporated into asbestos-cement pipe products.⁹ All stages of handling asbestos-containing ore in the mining and manufacturing processing environments, including shoveling, screening, loading, and unloading, can generate asbestos fibers into the environment.¹⁰ The population of both South Africa and Western Australia who reside in the asbestos mining areas suffer significant asbestos-related illnesses. Blue asbestos is the most dangerous and toxic of the asbestiforms.¹¹ As stated in the conclusion of a South African study of asbestos fiber type, "...it must be concluded that [blue asbestos] represents the greatest hazard to human health."¹²

The specific issue to be addressed in this thesis is the historic use of blue asbestos within the Johns-Manville Corporation manufacturing facility in Waukegan and the eventual migration of those fibers to potentially pollute the abutting shore of Lake Michigan. The manufacturing facility at issue was built in 1922 and would have started using their adjacent waste pond to dispose of the asbestos, among other pollutants, almost immediately. This dumping continued into the 1980s, with the area eventually being declared a Superfund site.

⁸ Ibid, p 69.

<https://go.gale.com/ps/i.do?p=HRCA&u=anon~e5aa8c79&id=GALE|A175110775&v=2.1&it=r&sid=sitemap&asid=3e8ac35d>. A small amount of blue asbestos was mined in Bolivia and is known as Bolivian Blue. This asbestos was included in the Kent Cigarette filters in the 1950s.

⁹ Office of Toxic Substances, "Life Cycle", p. 115.

¹⁰ Office of Toxic Substances, "Life Cycle", p. 30.

¹¹ Abramson Cancer Center, "How are People Exposed to Asbestos," *Penn Medicine*,

<https://www.pennmedicine.org/cancer/types-of-cancer/mesothelioma/causes-risks-prevention/what-is-asbestos>

¹² Neil White, Gill Nelson, and Jill Murray, "South African experience with asbestos related environmental mesothelioma: Is asbestos fiber type important," *Science Direct: Regulatory Toxicology and Pharmacology*, (2007), 1-5, p 4. <https://pubmed.ncbi.nlm.nih.gov/18023951/>

Questions

The questions and issues to be addressed are:

1. The historic state of the knowledge, and timing of that knowledge, by South African mines concerning the health hazards associated with downstream purchasers, such as Johns-Manville, using blue asbestos;
2. The historic state of the knowledge, and timing of the knowledge, by Johns-Manville of the health hazards associated with its use of blue asbestos in the Waukegan manufacturing facility; and
3. Did blue asbestos fibers migrate from the Johns-Manville facility to the lakeshore and, if so, are they still a health hazard to people and wildlife in the area, with a particular focus on the 4,160 acres Adeline Jay Geo-Karis Illinois Beach State Park that includes swimming, boating, picnicking, hiking, fishing, and similar family friendly beach and water recreational activities?

Primary Sources

I possess a number of primary sources focused on the importation of blue asbestos by Johns-Manville from Cape Asbestos in South Africa, the use of that asbestos in the Waukegan facility, the dumping of the waste product into a pit adjacent to the plant and near the Lake Michigan shore at issue, and the testing of the shoreline for asbestos fibers. An excellent example is the August 23, 1983, draft report on the asbestos waste site associated with Johns-Manville's Waukegan facility.¹³ The report involved on-site investigations and noted that broken pieces of the end product that contained blue asbestos, asbestos-cement pipe, were seen in the waste dump near the lake shore.

To show that Johns-Manville purchased blue asbestos from South Africa for use in its Waukegan manufacturing facility is a Johns-Manville Purchase Order that is available on

¹³ Battelle and Dale Keyes, Consultant, "Draft Technical Report in Region V Re Asbestos waste site (Johns-Manville Corp.), Waukegan, IL, EPA Contract No. 68-01-6721," (Washington D.C.: August 23, 1983), p 7.

ToxicDoc.org. This September 11, 1974 multi-page purchase order to Cape Blue Mines includes blue asbestos for shipment to the Waukegan manufacturing facility.¹⁴ Although I plan to beef up my research on this issue, this document, taken by itself, provides a foundation to raise the questions discussed above.

A number of primary sources exist that analyze the asbestos at the Lake Michigan shoreline. Merely as an example, these include a Public Health Assessment undertaken by a division of the U.S. Department of Health and Human Services published on June 16, 2000. This report was, and remains, controversial as to the asbestos-related hazards arising from the asbestos-containing material at the lake shore.¹⁵ The same agency has since produced Health Consultations concerning the asbestos in that area that downplay the health risks. As stated in its October 19, 2007 Health Consultation:

“In late 1997, pieces of transite pipe, siding, and roofing materials suspected of containing asbestos were found scattered along the beach. In February 1998, the Illinois Department of Natural Resources collected bulk samples of the material and found they contained asbestos fibers.

ATSDR found that the simulated sand castle building did not result in air levels of asbestos greater than the reference stations inside the park boundary.

None of the airborne asbestos samples detected chrysotile, which is the predominate type of asbestos found in the asbestos containing debris washing up on the shore. Most of the asbestos detected was not the regulated varieties used or found in commercial products, i.e., chrysotile, amosite, crocidolite, and fibrous varieties of tremolite, actinolite and anthophyllite.

¹⁴ Johns-Manville Corporation, “Purchase Order to Cape Blue Mines (Pty.), Ltd.” (Location Unknown: September 11, 1974), page 2. <https://www.toxicdocs.org/search?q=cape%20correspondence%20with%20Manville#>

¹⁵ Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services, “Public Health Assessment for Illinois Beach Park, Zion, Lake County, Illinois, Cerclis No. ILD984840140,” (Springfield, VA: June 16, 2000).

The activities simulated at the beaches at IBSP pose no apparent public health hazard.”¹⁶

As discussed in “Agency Challenges CDC Study Calling Asbestos Safe” about this lakeshore area, not everyone agrees with the conclusion and, further, some of the local residents believe that the government is committing “scientific fraud”.¹⁷ See also the issues outlined by Jeffery C. Camplin, CSP, CPEA.¹⁸ Finally, the July 26, 2005 request by an unidentified private citizen to the ATSDR’s June 16, 2005 press release details the problems with the ATSDR’s analysis.¹⁹ Science is often controversial, and sometimes inaccurate, when dealing with asbestos related issues. This concern, depending on the reports and what the research discovers or develops, may become a separate issue as the paper examines the potential existence of health hazards.

Secondary Sources

Most of my current secondary sources are focused either on the activities that took place in South Africa or on the disposal of the pipe material into the waste dumps adjacent to the Waukegan manufacturing facility. A good example on the former is the 2007 article by Jock McCulloch, titled “Surviving blue asbestos: mining and occupational disease in South Africa and Australia.” McCulloch, who passed away in January 2018, was an extraordinary environmental health historian who specialized, among other topics, on blue asbestos from both South Africa and Australia. A good example of the latter is the October 1984 work-plan for the Johns-Manville Waste Disposal Site in Waukegan that discusses the history as “The site is reported to have

¹⁶Agency for Toxic Substances and Disease Registry, “Exposure Investigation Report: Illinois Beach State Park, Zion, Lake County, Illinois, EPA Facility ID: ILD984840140,” *U.S. Department of Health and Human Services* (Atlanta: October 19, 2007), p i-iii..

¹⁷ Mesothelioma Aid, “Agency Challenges CDC Study Calling Asbestos Safe,” n.d. <https://www.mesothelioma-aid.org/idps.htm>

¹⁸ Jeffrey C Camplin, “Lake Michigan Shoreline Asbestos Contamination Continues: Now Known as the New “Libby East.”” (undated) <https://illinoisdunesland.org/asbestos-exposure-risks.html>

¹⁹ Unidentified Private Citizen, “CDC/ATSDR -- Illinois Beach Park Assessment: Request for a Correction,” July 26, 2005. <https://aspe.hhs.gov/cdcatsdr-illinois-beach-park-assessment-request-correction-rfc>

received asbestos containing wastes. The wastes are primarily cuttings and waste products from the manufacturing of cement asbestos pipe and ashes containing roofing and insulating materials.”²⁰ This type of document is critical to support that blue asbestos, as a significant fiber used in the cement-asbestos piping, was present in the waste disposal facility near the lake shore.

One of the most important secondary sources is a 2006 Circular 128 authored by the United States Geological Survey that is titled “Worldwide Asbestos Supply and Consumption Trends from 1900 through 2003.” This 80-page document provides a wealth of information broken down by countries and years. The discussion on South Africa begins on page 8 and mentions that the blue asbestos production began to decline in the late 1970s and ceased in 1997. This circular includes significant references to primary sources in support of the statements.²¹

Working Thesis/Argument

My working thesis is that we should be careful about accepting any analysis discussing the extent of the hazard arising from the blue asbestos that has migrated from the Johns-Manville Waukegan manufacturing facility to the lake shore. I do not plan either to minimize the risk or to claim harm where none exists. Rather, I want to look underneath the science including who knew what, when it was known, and whether any risk still exist. Having discussed this with the Illinois Dunes Preservation Society, no one has seriously looked into this issue from the perspective of residents and beach users, or reexamined the risks, during the last 10 years.

²⁰ Kumar Malhotra & Associates, “Work-Plan: Geotechnical and Hydrogeological Investigations, Johns-Manville Waste Disposal Site, Waukegan, Illinois,” (Grand Rapids, MI: Revised October 1984), p. 6.

²¹ United States Geological Survey, “Worldwide Asbestos Supply and Consumption Trends from 1900 through 2003, Circular 1298,” (Reston, VA: 2006), p. 8.

Engaging the History of the United States with the World

Asbestos usage, and health hazards related to that exposure, is a worldwide issue. My topic is meant to show how conduct that occurred in South Africa has affected, and continues to affect, the health of those who reside or play on the Lake Michigan shoreline near Waukegan. In summary, this is one example to show how the exporting of asbestos from South Africa to the United States has caused either real or perceived harm in the United States.

My Process and Next Steps

I am in the process of significant document reviews, sorting out the need for Freedom of Information Act requests, and setting up primary source witness interviews. I submitted on February 8, 2024 a FOIA request to the U.S. EPA with a request for expedited status. My most important interview next week will be with the Johns-Manville Waukegan facility former industrial hygienist. I am also trying to set up an interview with a former South Africa Cape Asbestos director and to obtain, from the U.K., the book that he published in January 2024 as a “tell-all.” I plan to use this information to outline the thesis as I follow my research in the directions that make sense.

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