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Business First®

Western New York's Business Newspaper

\$1.25 single copy
TWO SECTIONS

TIME 11, NUMBER 43

PUBLISHED EVERY WEEK

WEEK OF AUGUST 7, 1995

50 years later, legacy of the atomic bomb ticks away in WNY

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Business First

From early 1942 until the day that America dropped the first atomic bomb 50 years ago this month, a team of at least 40 scientists and hundreds of production workers toiled in Western New York to change history.

Their legacy includes more than the end of the second World War or the start of the Cold War. The Manhattan Project lives on in the memories of local workers and in the waste at several Erie and Niagara county sites.

In most cases, the waste is in vacant industrial land that may never be open for other development. But at the very least, Western New York's role in building the atomic bomb continues to influence the way the land is used 50 years later.

For example:

- In Lewiston, 205,000 cubic yards of radioactive waste will remain forever in federal custody.
- In Tonawanda, politicians and environmental-

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WNY's role in atomic weapons and energy

Linde research laboratories

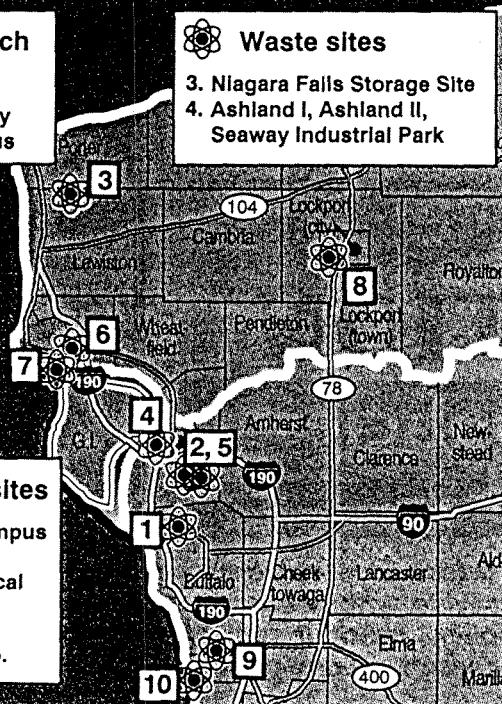
1. Chandler St. facility
2. Tonawanda campus

Waste sites

3. Niagara Falls Storage Site
4. Ashland I, Ashland II, Seaway Industrial Park

Manufacturing sites

5. Linde Tonawanda campus
6. Electromet
7. Hooker Electrochemical
8. Simonds Saw & Steel
9. Bliss & Laughlin
10. Bethlehem Steel Corp.



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Atomic legacy

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ists are fighting to remove comparatively harmless waste that generates a fairly harmful stigma.

• In Lockport, 10 vacant acres next to the Allegheny-Ludlum steel plant remain off limits because of post-war Atomic Energy Commission work that picked up where the Manhattan Project left off.

And workers who couldn't discuss their work 50 years ago remember the dawning of the nuclear age, when the bomb was dropped on Hiroshima on Aug. 6, 1945.

"We knew when the bombs were dropped over Japan, we were well aware that we had a part of it," recalls William Faust, an engineer who supervised construction of the area's largest Manhattan Project facility.

Between 1942 and 1946, a plant within a plant operated at Union Carbide and Carbon Inc.'s Linde Air Products in Tonawanda. The plant processed uranium ore into oxides that could be easily converted into a gas. Elsewhere, the gas was sent through specialized filters that Tonawanda manufactured to separate the uranium into its component isotopes.

In effect, the process reduced trainloads of ore to a boxcar of substances. Scientists could then sort out a shoe box of what they really wanted: bomb-quality U238.

"The uranium that went into those bombs was manufactured here," said Adam Malik, a researcher who started his Manhattan Project work at Columbia University and later transferred to Linde.

It was a highly secretive regional effort. The uranium processing sprang from local research. Chemical ingredients came from Niagara Falls, where much of the world's knowledge on metallurgy was concentrated in a few companies of the day.

Work toward developing the filterlike sieve to sort uranium isotopes was done at a semisecret Linde plant on Chandler Street in Buffalo.

"The whole process was so broken up and isolated. That was part of the secrecy of it all," recalls John Duane, a chief chemist at Linde's Tonawanda plant in 1945.

"Even some of the men involved in some of the physical work, the operators in the plant, had no idea," Duane said. "When the bomb went off in August 1945, one of the workers in the plant came in and said, 'I wish we were involved in that.'"

The uranium oxides from Tonawanda were machined into metal at Union Carbide's Electro Metallurgical Co. plant in Niagara Falls. Various raw materials came from Niagara Falls plants that Hooker Electrochemical Co. ran for the Army.

The entire operation contributed to a uranium-based bomb that was developed quicker than the "heavy-water" deuterium-based device that Germany was reportedly working on as early as 1942.

"The first time I knew our work was a success was when I heard about what happened at Hiroshima," recalled Lloyd Lilljequist, a retired Linde chemical engineer. "We were quite pleased that we did it. We were pleased we beat the Germans, because we knew they were working on it too."

By using uranium and gas separation, the U.S. engineering team brought a bomb to fruition sooner. By processing the uranium in Western New York, pockets of radiation remain in the local soil.

Today, the Linde plant and three related disposal sites in Tonawanda are linked into one cleanup program coordinated by the U.S. Department of Energy. By October,



Douglas Davis, a physicist at the U.S. Department of Energy's storage site in Lewiston, stands atop a landfill cap that covers Manhattan Project waste. The building in the background dates from the site's original use as a TNT factory.

Photo by Bob Bukaty

federal officials should know how costly it will be to remove waste from the Tonawanda sites and ship it to a controlled disposal site in Utah.

Each of the area's atomic weapons and energy sites raise specific concerns in the public debate over their future.

The Linde Plant Campus, now Praxair 135 acres, 71,000 cubic yards of waste

Five buildings were used for the uranium processing. Four have been partially decontaminated and one has been demolished. One building is still used for research; the other three are vacant.

While the plant operated, most of the liquid wastes were pumped into bedrock wells. Overflows discharged into Two Mile Creek. The wells were later capped.

"We have maps and maps and maps. We feel that it is migrating but we can't prove anything," said Donald Finch, a retired Linde worker who is researching the contamination for the Oil Chemical and Atomic Workers union.

Finch is working to file civil lawsuits seeking exposure-related damages on behalf of Linde workers and their families. He points to cancer clusters and says the cleanup is not addressing all radiation.

Federal radiation surveys conducted in 1988 at two of the buildings show significant contamination. The plant's main uranium-processing building still shows excess radiation in the roof vents only.

"The material is in floors and in walls. Unless you're going to go in and break them up, there's no problem," said Ronald Kirk, the energy department's site manager. "The issue here is if they were to renovate the property, (those buildings) would have to be taken into consideration."

The Ashland I & II 218 acres, 172,300 cubic yards of waste

"The biggest area that affects development is just off River Road between the landfill and the United (former Ashland) refinery," said Robert Dimmig, executive director of the Tonawanda Development Corp.

Lower-level uranium residues from the Tonawanda plant were first deposited on a 10-acre site, near the Niagara River and the south Grand Island bridges. When Ashland Oil Co. built its now-defunct refinery there, portions were moved to

adjacent sites at Ashland II and Seaway.

The Seaway site includes a solid waste landfill operated by Browning Ferris Industries Inc. and some vacant land targeted for housing.

"It's fairly small, but that would have some bearing if you've seen the development plans," Dimmig said.

The Town of Tonawanda waterfront master plan calls for moving River Road 1,000 feet east to free up some waterfront for a townhouse complex. A portion of that land includes the Seaway site.

In 1993, federal officials in charge of the cleanup proposed consolidating the radioactivity in a new Tonawanda storage site. The community successfully lobbied to have that plan withdrawn in April 1994.

"The community has taken the position that they want all of it shipped off to Utah," Kirk said. "The department position is that we want to find another less costly alternative."

Results of a study to determine if the waste volume — and therefore the removal costs — could be reduced by using chemicals to clean the soil are expected in October.

Niagara Falls Storage Site and vicinity 191 acres, 205,000 cubic yards of waste

Much waste from Linde's uranium-processing work is entombed under clay in a 1991 landfill at this federally owned site. The long-term fate of the highest level radioactive waste there is still under review.

Built from the remains of a massive government complex that started as an early-war TNT factory, the site sits in northern Lewiston, near the Porter town border.

The facility's nearest neighbors are a garbage landfill and the Northeast's only commercial hazardous waste landfill, both carved from the surplus land of the Lake Ontario Ordnance Works.

"The issue there is restricting access," Kirk said. "The federal government will own this in perpetuity."

The facility is closed and monitored. Even as New York searches for a low-level radioactive waste disposal site, federal officials have pledged to the town that it will not accept any other waste.

"We made a commitment that no more nuclear material can come into Niagara

Falls," Kirk said, "and DOE is prepared to stand by that commitment. We're not prepared to unilaterally open that."

Electro Metallurgical Co., Niagara Falls

The Union Carbide facility that machined Manhattan Project uranium once stood south of Pine Avenue and east of Packard Road. It was demolished in 1957, with waste going to the Niagara Falls storage site, and Union Carbide's nearby landfill (later Cecos International's hazardous waste disposal facility).

A 1979 radiation survey located higher radiation levels related to other Union Carbide activities, but found no need for further cleanup at the Electromet site.

Simonds Saw and Steel

In 1948, the Simonds Saw and Steel Co. machined uranium under a subcontract to the Atomic Energy Commission.

"We have a facility that is mothballed and off limits and the people that own it in bankruptcy court are well aware of it," said P.C. Panigrahy, plant manager at Allegheny-Ludlum's Lockport facility.

Allegheny Ludlum bought portions of the former Guterl Steel plant out of bankruptcy in 1984. Simonds operated the facility before Guterl.

Because the work was done on subcontract, it is not part of the federal cleanup program that targets Manhattan Project and Atomic Energy Commission plants.

Bliss and Laughlin Steel One building with 300 square meters of contaminated floor space

Under direct contract from the Atomic Energy Commission, this facility machined uranium rods in 1952.

"The materials we're dealing with there are metal filings from uranium metals. It's not the same situation you're dealing with at Praxair," Kirk said.

Cleanup is scheduled, by arrangement with the company, in October 1996.

Bethlehem Steel-Corp.'s 10-inch bar mill, Hamburg

The bar mill also performed atomic energy work part time from 1949-53. Decontamination of the facility was completed after each job, and federal records show no residual radiation.