Remembering Those Who Died

At approximately 3:11 p.m. on Saturday, December 11, 1971, 21 men died when an explosion ripped through the six-mile-long tunnel under construction beneath Lake Huron in Fort Gratiot Township, outside Port Huron. Another man who was bought out injured, but alive, died 10 months later. The tunnel was intended for use by the water treatment plant then being built by the Detroit Metropolitan Water Services, the name by which DWSD was known at the time.

Beginning on December 11, 2002, the 31st anniversary of that tragic event, an effort was begun to raise money for a permanent memorial to remember the 22 victims of Michigan's most deadly industrial accident. The memorial will be installed on the grounds of the Detroit Water and Sewerage Department's (DWSD) Lake Huron Water Treatment Plant, located at 3993 Metcalf Road in Fort Gratiot Township.

Details about the Tunnel Fund and how you can contribute to it will be provided at the end of this story.

Building on Dreams

The Lake Huron plant, dedicated in 1973, was the realization of a dream dating back to Gardner Williams, a civil engineer employed by the Detroit Board of Water Commissioners. He is credited with originating the idea of tapping into Lake Huron in 1895.

With a population of nearly two million in the 1950s, urban planners looked at a bright future with nothing but continued, unlimited expansion for the City of Detroit. It made sense to establish a second water intake to serve the northern service area and to supplement the Department's intake in the Detroit River. Lake Huron was the perfect choice.

Planning began in 1962. Everything about this new plant would be huge, all the better to serve the sprawling megalopolis destined for Detroit's future. A massive 16-foot diameter intake tunnel, more than 200 feet below the lake bed would draw up to 1.2 billion gallons of raw water per day from the lake, and would be able to withstand a direct hit from a nuclear warhead.

But, the sprawling urban giant predicted by city planners – with 4.5 million people living in Wayne County by 1975 alone – never materialized. People were already starting to leave the city for the suburbs. Wayne County's actual 1975 population would be just over 2.5 million.

However, civil engineering projects can be hugely complex. Once plans are in place, they are not easily shelved. So it was with the Lake Huron plant. With little fanfare, construction on the intake began in 1968.

Risky Business

There are inherent dangers associated with any tunneling or mining project. Most of Michigan sits atop a layer of Antrim shale, named for Antrim County near Grand Traverse Bay. The formation is known to contain pockets of natural gases such as methane, and hydrogen sulfide. Antrim shale formations in northern Michigan supply natural gas to more than 6,000 wells.

After the tunnel explosion, Barry Brown, then executive director of the Michigan Department of Labor said, "It is hard in this state to dig a hole very deep without running into gas. There will always be the danger of explosion in this kind of tunnel operation."
But that was after the fact. Before the explosion, those who worked in the tunnel considered the money good, and the risks manageable. In fact, most of those who worked in the tunnel were less worried about an explosion than they were of flooding from drilling taking place at the intake, five miles out in Lake Huron, and 45 feet down on the lake bottom.

The Best Laid Plans...

The plan was to tunnel simultaneously from the shore and the intake, and meet in the middle. From the beginning, work proceeded smoothly from the shore. Workers employed by Greenfield and Associates—a consortium made up of Greenfield Construction Company, Inc., Rocco Ferrara & Company, Inc., S.A. Healy Company, and J.F. Shea Company—were doing a fine job. At the lake end of the tunnel, a watertight enclosure, known as a cofferdam, was used to protect workers building the intake. Actually, seven cofferdams in a circle were used.

One cofferdam collapsed in the summer of 1969. Storms destroyed several cofferdams in 1970, and again in '71. And so it went. The cofferdam problems conspired to prevent work from proceeding on the intake. Eventually, it was determined the lake bed was too unstable to support the structures.

Finally in November 1971, Mile High Drilling of Denver, the contractor hired to drill the intake, figured out how to overcome the problems caused by the soft and muddy lake bottom. By lowering refrigeration coils into the lake bed, the ground could be hardened, which would allow it to support the structures.

It was an ingenious solution. But, little did anyone realize that the very solution allowing work to move forward on the intake would become a factor in events to come.

"It Was A Good Job"

Early in December 1971, work in the tunnel was within just weeks of completion. "It was a good job," said Warren Nielsen, then Secretary of Greenfield and Associates. The tunnel's pitch was within 1/10 of design specifications. Of the full six miles of tunnel bored, only the last mile at the shore end remained uncemented.

Saturday, December 11 was a dreary, drizzly, and overcast day. About 11 a.m., 43 men descended into the tunnel, roughly 230 feet below the surface. They took up positions within the last unlined mile at the shore end, where they continued finishing operations.

William Rounsville, who would survive the explosion, later recalled asking one of the supervisors, Vernard Woolstenhulme, if drilling would be taking place at the other end of the tunnel. "No," said Woolstenhulme. "They're going to drill tomorrow, and I don't want any of my men in the tunnel."

Woolstenhulme and his grandson, Gary Roehm, died in the explosion.

Meanwhile out at the cofferdam, refrigerating the bottom sediment had worked like a charm. Over the course of the last several days, crews had drilled through 30-feet of sediment into shale to within about eight feet of the top of the tunnel. They would drill the remaining eight-feet today.
The men in the tunnel didn’t know about the drilling that was planned. The men on the drilling platform thought the tunnel was empty.

**On the Verge of Disaster**

The drill bit bored through the remaining eight feet of shale without problem. The bit broke through the concrete roof of the tunnel, at which point the crew broke for lunch. It was now about 1:50 p.m.

As the bit cut through the shale, it cut through, at least, one pocket of methane that vented into the big, empty, unventilated end of the tunnel. While the drilling crew ate lunch, gas collected.

Following lunch, the crew tried to retrieve the bit, but encountered resistance. They could always retrieve the bit later, and chose to activate a release mechanism and jettison it.

Around 3:11 p.m., the heavy, 23-inch drill bit was released from the shaft. It fell to the bottom of the tunnel where experts say it created a spark upon impact with the concrete. The spark, in turn, ignited the accumulated methane, and an unstoppable chain of events was put into play.

On the drilling platform, crew members felt a hot blast of air shoot from the hole accompanied by "a sound like a jet taking off," according to one of the drillers. A crewmember was knocked back into the water.

According to contemporary newspaper accounts, Russ Michaels, a Water Department inspector, immediately called Greenfield and Associates' site headquarters near the tunnel entrance to advise them of the explosion, adding, "It's a good thing no one was working down there."

An unidentified voice replied, "We had 41 men working down there - and we think they are buried."

**The Explosion**

According to studies conducted by Professor J.A. Nichols – head of the University of Michigan's Gas Dynamics Laboratory – the explosion produced a "detonation wave" with a 4,000 mile-per-hour velocity, and a force of 15,000 pounds per square foot.

Debris shot out of both ends of the tunnel. Jim Whipple, who lived 400 yards from the tunnel heard the explosion. "I looked out the window and stuff was flying into the air – lunch buckets, safety helmets and water – and this stuff flew up 200 feet," he said.

Inside the smoothly-bored tunnel, the effect was like what happens in a rifle barrel after pulling the trigger. Tools and chunks of concrete were turned into deadly projectiles. The shock wave ripped the corrugated sheet metal air ducts, used for ventilation, to shreds. Much of it was propelled on the crest of the wave, forming into twisted balls with razor-sharp edges as it moved forward.

Normally immovable objects were tossed around like so many toys. A 15-ton crane was thrown more than 1/3 of a mile. A five-ton gantry used to pour concrete was shoved about 1,000 feet toward the shaft's entrance. Train Operator Rodney Webster, and the train he was on, was blown about 1,200 feet toward the tunnel entrance.

Richard Green, 27, was operating a vibrator, a concrete-finingishing machine, at the time of the blast. "I don't remember much about the explosion. I thought an airline broke, but it pushed the hell out of me. It seemed like
a bomb," he said. "I was on top of the form, and the next thing I knew I was flying through the air."

Those killed were more than four-and-one-half miles from the explosion's epicenter.

**Rescue Efforts**

Within minutes, word of the explosion spread to the outside world. Hundreds of police from five agencies descended on the location where they assisted sheriff's officers from St. Clair County in rescue efforts, alongside local firefighters and other emergency personnel. Rescuers entered the tunnel repeatedly with stretchers, blankets, water, oxygen, portable lights, and food.

Robert Meese, a volunteer fireman from the Burtchville Township Fire Department, was one of the first on the scene. "It looked like an H-Bomb hit that tunnel," he said.

More than once, rescue operations were suspended because of accumulated gas in the tunnel. At least one rescuer had to be treated when he was overcome.

Rodney Webster, one of the injured who made it out alive said of the rescuers, "What brave men they were. Do you know how much courage it took to go down there, knowing there could be another explosion?"

Eventually, 21 bodies were removed from the tunnel. Initial reports put the body count at 22. The discrepancy was likely the result of confusion caused by the enormity of what happened.

Of those in the tunnel, 22 made it out alive, seven of those were carried out on stretchers. The least injured, Francis Hamrick, suffered a broken arm, neck injuries, cuts and bruises. The actual 22nd victim, Keith Verner, died about 10 months after the explosion.

**Aftermath**

In the weeks and months that followed the explosion, 30 lawsuits were filed in Wayne County. Some were dismissed as frivolous. Many others were not. Eventually, $8.5 million - a record in 1976 - was awarded to several plaintiffs.

The families, of the men who died in the tunnel, each received $750 from the State of Michigan for funeral expenses. Widows received $79 a week for 10 years. Those with children got $102.

The most significant development to come from out of this tragedy was a revamping of Michigan's occupational safety laws.

More stringent regulations and laws now make it easier to go after negligent employers in Michigan. The effect has been a heightened sense of protection for industrial workers.
The tunnel explosion led to a stronger Michigan Occupational Safety and Health Administration, MIOSHA, which Warren Nielsen sees as a good thing.

Today, the Lake Huron plant is the northern-most of DWSD's five water treatment plants. It supplies Detroit's northern suburbs, as far away as Flint, with an average 270 million gallons a day of high quality potable water.

Gerald Remus – the Director who presided over the Water Department during a period when it more than doubled the number of suburban customers it served – described Lake Huron's water as "gold." His opinion was bolstered by tests in the early 1960s that showed that water at the proposed intake site was clean enough to drink, even without treatment. Times have certainly changed, and treatment standards have gotten tougher, but water pumped from Lake Huron is still uniformly excellent, requiring very little treatment. "We have to chlorinate it only because the law requires that we do so," said Pamela Turner, DWSD's Water Quality Manager.

Honoring Those Who Were There

When completed, the purposed memorial will feature a brick walkway and a granite stone inscribed with the names of the 22 victims. The names and sentiments of supporters will be engraved on the bricks. Contributors can purchase a regular-sized brick for a tax-deductible donation of $25. Larger corporate bricks are available for donations of $250 or more. A state historical marker and memorial garden will also be located at the site.

DWSD is proud to be a part of this worthy effort. Others partnering with the "1971 Water Tunnel Explosion Foundation" are the St. Clair County Community Foundation, the Port Huron Museum, the Port Huron Times Herald and families of the victims.

Those who wish to contribute can do so by sending a check to the Community Foundation of St. Clare County at 516 McMorran Boulevard, Port Huron, Michigan 48060. Donors are asked to write "Tunnel Fund" in the memo line of their personal checks, or include a reference to the fund in writing when sending payment. For more information, contact Debbie Comeau at (810) 982-4826, or the Port Huron Museum at (810) 982-0891. Those who will be memorialized include:

Manuel Abasta, 31
Romualdo Alvares, 40
James Beesely, 34
Roswell Brown, 43
Raymond N. Comeau, 35
Gerald Curtis, 32
Patrick Dingman, 35
Charles Epperson, 44
Donald Fogal Jr., 21
Donald Hardel, 30
Kenneth Hawes, 33

Martin Laretz, 25
Frank E. Polk, 27
James Reighard, 30
Gary Roehm, 20
Claybourne Simkins, 38
Guillermo Teran, 36
Glen Verner, 44
Keith Verner, 21
Donald Williams, 44
Walter J. Woods, 36
Vernard Woolstenhulme, 63
Sources

Information used to construct this account was taken primarily from local newspaper coverage of the events. The Detroit Water and Sewerage Department deeply appreciates the special cooperation extended by staff of the Port Huron Times Herald, as well as Debbie Cameau.

Reporters:

David Ashenfelter
Robert S. Ball
Russ Bellant
Ron Bonnett
Michael Brogan
John F. Brown
Mike Connell
David Cooper
Grace Crimmins
Judy Diebolt
James Donohue
Glenn Engle
Paul Gainor
John Gill
Ted Goczkowski
David L. Good
James Graham
James S. Granelli
James Harper
David Hess
Gary Hoffman
Jennifer Jarratt

Publications:

Michael L. Jones
Michael Maidenberg
Jan Mitchell
Lou Mlezko
Jerry Moskal
John F. Nehman
Ladd Neuman
John F. Newman
Tom Nugent
Sevil Omer
Ralph Orr
Mike Patton
Charles Runyan
Al Sandner
William Schmidt
James Thomas
James G. Tittsworth
James A. Treloar
Marcia Van Ness
Michael Wendland
Edward Wendover

Ann Arbor News
Associated Press
Bay City Times
The Building Tradesman
Detroit Free Press
Detroit News
East Side Shopper
Gannett News Service
Livonia Observer
Macomb Daily
Metro Times
Monroe News
Plymouth Mail & Observer
Pontiac Press
Port Huron Times-Herald
Royal Oak Daily Tribune
Ypsilanti Press