EPA Refuses to Release Seismic Data on Proposed Inergy Finger Lakes Liquid Gas Cavern with a History of Earthquakes

By **Peter Mantius**, on June 15th, 2012

Natural Resources News Service | **5 comments**

Inergy Salt Plant, Watkins Glen, NY

WATKINS GLEN, NY – Rubble 200 feet deep covers the floor of a former brine cavern now slated to hold up to 600,000 barrels of highly pressurized liquid butane near this Finger Lakes tourist village.

The company that seeks regulatory permission to use the cavern and several others like it for hydrocarbon storage argues that they are ideal repositories for explosive material, immune to collapse or leakage due to a protective layer of stable, impervious salt.

But the presence of rubble at the base of each proposed storage cavity raises questions that neither the company nor environmental regulators are willing to air in public.

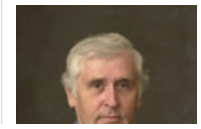
The U.S. Environmental Protection Agency claims to hold documentation showing that the roof of the cavern now earmarked for liquid butane storage once collapsed in an earthquake, causing a previous owner of the well to abandon plans to store natural gas there. However, the EPA refused last month to disclose the date of that earthquake and roof collapse or the identity of the company that abandoned its hydrocarbon storage plans, denying DCBureau's requests under the Freedom of Information Act. An appeal is pending.

Inergy L.P. of Kansas City needs formal approvals from the EPA and the New York State Department of Environmental Conservation to reuse the salt caverns as underground warehouses for liquid petroleum gas, or LPG.

Like the EPA, the DEC has construed Inergy's right to confidentiality broadly.

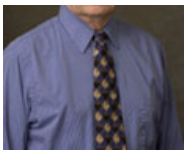
In November 2010, the state environmental agency upheld the company's assertion that the history of the caverns is a "trade secret." Denying DCBureau's formal requests and legal appeals, the DEC withheld as confidential sections of an Inergy report entitled, "Well construction and well history," and, "Suitability of caverns to store LPG," among others.

In denying public access, a DEC attorney said the "great majority" of the report consists of "a compilation of information developed by the applicant's study of its own premises, together with its plans for the future use of its premises, and I find that such content is entitled to confidentiality…"



Richard Young, a geology professor at the State University of New York at Geneseo, disagrees. "That's ridiculous. What's confidential about it? The fact that they won't discuss (geologic) events is ridiculous."

Meanwhile, Inergy, free from fear of contradiction by evidence hidden under a confidentiality edict, has publicly dismissed threats posed to


Richard Young, SUNY Geneseo

the caverns by earthquakes or significant faults in overlying rock formations.

"Based on company experience, site data and public data, no cavern has ever failed due to geological movements within the salt," the company says in one 2011 filing.

In a public relations "Fact Sheet" distributed locally, Inergy scripted a hypothetical "Fiction" and provided a "Fact" response:

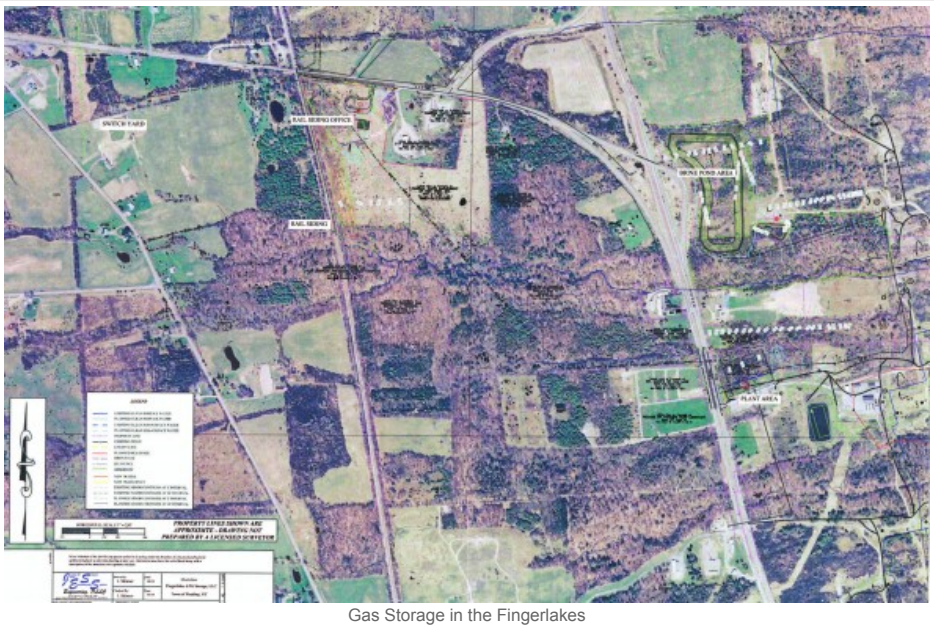
"***Fiction***: There are lots of small faults around, many of which aren't even mapped. And we're not seismically clean. We are in an area that does have a 3 or 4 (on the Richter Scale) earthquake on occasion.

"***Fact:*** Based on data compiled by the National Geophysical Data Center and updated using USGS data, there are no risks involved at the site with earthquakes within 1/2 mile of the subject (caverns). In addition, an Earthquake Database Search was conducted as well as a base map complied by the National Geophysical Data Center using USGS data. The results indicated that the area continues to be a low-seismicity area."

Part of that Fact/Fiction PR script is true. Watkins Glen does lie in a low-seismicity area. But it sidesteps mention of the following relevant events:

- A 3.2-magnitude earthquake in February 2001 that geologists say was triggered by salt mining activity 26 miles southwest of Watkins Glen.
- An apparent 3.6-magnitude earthquake in March 1994 that was triggered by the catastrophic collapse of the Retsof Salt Mine in Cuylerville, N.Y., about 60 miles west of Watkins Glen.
- A 3.4-magnitude earthquake in 1984 in Dresden about 20 miles north of Watkins Glen.
- The earthquake of unspecified size, date and location that the EPA identified as the cause the roof collapse in "Well 58" just north of Watkins Glen.

The EPA's knowledge of the Well 58 event was revealed in a December 6, 2011, letter from Nicole Foley Kraft, chief of the Ground Water Compliance Section of EPA's Region 2 office in New York City, to Brody D. Smith, a Syracuse attorney representing Inergy. That letter included the following statement: "…EPA file records indicate that Well 58 was drilled for natural gas storage but that an earthquake caused a cavern roof collapse that led to the well's abandonment."


Gas Storage in the Fingerlakes

DEC records show that Akzo Nobel drilled Well 58 in 1992 and that the well was plugged and abandoned in 2003. An Inergy affiliate known as Finger Lakes LPG Storage reopened the well in 2009.

According to Inergy's regulatory filings, Well 58, also known as Gallery 2, is being redesigned to store up to 600,000 barrels of liquid butane, or possibly, liquid propane. Company filings note that the gallery's total capacity is actually 827,000 barrels, but "rubble" on the cavern floor occupies much of that space. The original depth of the well in 1992 was 2642 feet, well records show. The depth in 2009 was 2425 feet.

Four other wells are being redesigned to make up Gallery 1, the space Inergy proposes to use to store up to 1.5 million barrels of liquid propane. Those wells also have rubble on their floors, Inergy says.

Both the EPA and the DEC have quizzed Inergy at considerable length about the integrity and stability of its caverns. In her December 2011 letter to Inergy's lawyer, the EPA's Kraft demanded company documentation that Well 58 "has integrity and that the cavern roof is stable."

The agencies appear concerned about at least two significant dangers: potential cavern collapse and potential cavern leakage through faults in cavern walls, roofs or floors. But the process the agencies use to decide whether or not to grant necessary permits remains a black box to the public.

Lake Seneca

Yvonne Taylor and Joseph Campbell, co-founders of a local citizens' group formed to try to block Inergy's LPG project, said members of Gas Free Seneca feel "stonewalled" by Inergy and its regulators. More than 140 local businesses and 5,000 individuals have signed on to support their campaign. "The DEC and the EPA are not in place to protect the environment or care for individuals and small businesses so much as they are there to promote heavy industry and protect large corporations," Taylor and Campbell said in a statement to DCBureau. "If something goes horribly wrong, it will be those of us who call this beautiful place home who will be the victims left holding the bag, *not* Inergy or the DEC/EPA."

And things have gone horribly wrong at salt caverns near and far from Watkins Glen.

The Retsof Salt Mine, 60 miles to the west, was the largest salt mine in North America before its roof collapsed in 1994. Initially, the event was presumed to be an earthquake, but geologists, including Young at neighboring SUNY-Geneseo, later concluded that the collapse itself caused the tremor. Fresh groundwater rushed into the gigantic cavity – roughly the size of the island of Manhattan – compromising drinking water supplies throughout the region. The Retsof mine was owned by Akzo Nobel, the same company that drilled the far smaller Well 58 in Watkins Glen.

If the Retsof calamity is the most notorious example of the dangers of salt cavern collapse, the accident that best underscores the dangerous potential of salt cavern leakage occurred in Hutchinson, Kansas, in 2001.

A series of fires, explosions and brine geysers at seemingly random locations in Hutchinson killed two people and injured several more. Entire neighborhoods were evacuated, and some people were not able to return home for months.

Photo courtesy of the Hutchinson Fire Department

Investigators traced the gas leaks to the Yaggy Storage Field about seven miles northwest of Hutchinson. The Yaggy caverns were created by drilling wells in salt formations and then expanding the cavities by dissolving their salt walls, much the way Well 58 in Watkins Glen was developed.

At Yaggy, gas seeped out of one or more overfilled storage caverns and flowed along various rock faults to accumulate in unpredictable and highly flammable pockets, according to the British Geological Survey's landmark 2008 study of salt cavern safety worldwide.

In the case of the Watkins Glen salt caverns, evidence of extensive faulting began piling up in the 1970s. In a pair of reports in 1973 and 1974, geologist Charles H. Jacoby focused specifically on faulting in and around the Watkins Glen caverns. Jacoby, who worked for International Salt, which owned the caverns at the time, died in 2004. His partner in the 1974 report, L.F. Dellwig, a geology professor from the University of Kansas, died in April.

Jacoby and Dellwig concluded the following: “In the Watkins Glen brine field a major north-south strike-slip fault extends down at least to a bedding (step) thrust along which the block to the west of the tear fault has moved north a minimum of 1200 feet in the southern portion of the brine field.”

The 1974 Jacoby-Dellwig study also noted that leakage from a nearby well or cavern caused brine to flow along a fault to the surface a half-mile away: “During fracturing, a flow of brine at the surface 0.5 miles to the north must certainly be interpreted as the result of movement of brine from the well along the tear fault.”

If such a leak were to occur at a cavern holding pressurized liquid propane or butane, Young of SUNY-Geneseo said, the LPG could be expected to travel at least as efficiently as brine along established faults. And it could turn into gas, making its escape even more unpredictable.

Several years after Jacoby and Dellwig published their report on faulting at the Watkins Glen caverns, the National Waste Terminal Storage Program began scouting potential sites for the storage of high-level nuclear waste.

The NWTSP hired Stone and Webster Engineering Corp. to review the siting options.

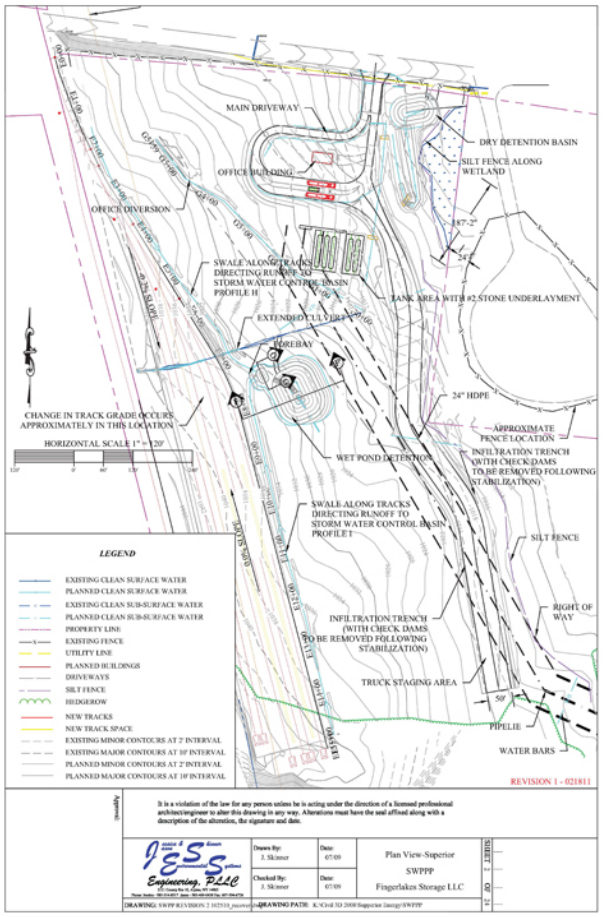
In an extensive 1979 report to the U.S. Department of Energy, Stone and Webster concluded that no sites within the Salina Basin in New York were suitable for storing nuclear waste – at least without further study on faulting. “Faulting in the New York study area is more widespread than previously thought,” Stone and Webster reported. “Thrust faults, both within and above the salt section, have been well documented previously. Nearly vertical faults in the Finger Lakes region have been proposed to explain a number of subsurface anomalies.”

The report included a chart of suspected strike-slip faults in New York. It labeled the suspected Watkins Glen fault that Jacoby and Dellwig had identified as the longest (about 70 miles) and as the one that caused the greatest displacement (1200 feet).

Since then numerous academic studies have detailed a complex web of suspected faults, some of which could affect Inergy’s site in Watkins Glen. But the New York State Geological Society has failed to follow up on these findings, according to Young at SUNY-Geneseo. “They’re probably behind every other state I’m aware of,” Young said of the NYSGS. “Many states have very active fault surveying and mapping. It just doesn’t happen here.”

That information gap may explain why the DEC’s recent efforts to describe faulting in upstate New York have been so conspicuously out of date. In its latest Draft Supplemental Generic Environmental Impact Statement for high-volume hydraulic fracturing, a document that exceeds 1000 pages, the DEC uses a fault map that omits the findings of Jacoby and Dellwig, Stone and Webster and several other cited academic studies on New York faulting that have appeared over the past 40 years.

That omission has triggered criticism that the agency often fails to be sufficiently rigorous – a charge that has been leveled in the past.



Intergy Storage Facility

In the wake of the 1994 Retsof Salt Mine collapse, the DEC was criticized for its alleged lax supervision of conditions and practices at the facility. Akzo Nobel had been allowed to test a controversial pillar system at Retsof. It failed, just as its detractors had predicted.

More recently, opponents of Inergy’s LPG project in Watkins Glen have noted that the agency waffled for nine months in 2010 over whether to require the company to complete a formal environmental impact statement. The agency’s decision followed shortly after a local official called the delay “ludicrous.”

Months earlier, the DEC had faced little or no public pressure when Inergy sought to significantly expand its LPG storage facility near Bath, N.Y. Ruling that the project “will not have a significant effect on the environment,” the DEC waived an environmental impact statement despite the fact that Inergy was allowed to discharge brine into the Cohocton River.

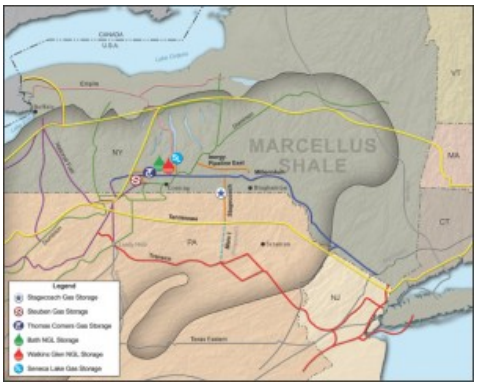
During most of 2010, the DEC worked outside the public eye in reviewing Inergy’s plans for LPG storage near Watkins Glen. That year, the company prepared a “Reservoir Suitability Report,” which considered cavern integrity, faults analysis and a host of other safety issues. When DCBureau.org attempted to obtain a copy, an attorney for Inergy asked the DEC to classify most of the report as a “trade secret.” The DEC complied.

One of the sections deemed confidential was entitled, “Faults analysis and Jacoby.”

After the DEC ordered Inergy in November 2010 to enter the much more public process of preparing an environmental impact statement, the company worked for

months to deliver one that met the agency's requirements. It accepted Inergy's Draft Supplemental Environmental Impact Statement (DSEIS) in August 2011.

In the DSEIS, a public document, Inergy acknowledges Jacoby's findings but insists there is no evidence that any of the faults he identified run deep enough to matter.



Shale Map

Galleries 1 and 2, the salt caverns that would hold the liquid propane and butane, are between 2000 and 3000 feet deep. Inergy argues that the salt and rock formations that overlie the galleries are completely free of faults. "There is no indication the faults extend into overlying confining beds," the DSEIS reports. But the same report states that the overlying bed is the Camillus Shale, and Stone and Webster did find indications that faults ran into that layer. The structure contour maps of the Camillus and other formations "do show structural influence in the area where the strike-slip fault is thought to exist," Stone and Webster said.

Young, the SUNY-Geneseo geologist, was more blunt. "For anybody to say it's fault-free is a joke," he said.

As the EPA and DEC continue to review the project and edge toward a ruling on the company's permit applications, Inergy has been actively working the site in preparation for its role as an LPG storage hub for the northeastern United States.

Meanwhile, last month Inergy LP sold its Watkins Glen salt mining and storage subsidiary to Inergy Midstream LP, an affiliated company with its own publicly traded stock.

Debbie Hagen, a spokesperson for Inergy LP, did not return several telephone messages or acknowledge receipt of emailed questions.

Epa i Nergy Letter 12062011

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Peter Mantius

Peter Mantius is a reporter in New York. He covered business, law and politics at *The Atlanta Constitution* from 1983-2000. He has also served as the editor of business weeklies in Hartford, CT, and Long Island. He is the author of *Shell Game* (St. Martin's Press 1995), a nonfiction book on Saddam Hussein's secret use of a bank office in Atlanta to finance billions of dollars in arms purchases from Western countries before the 1991 Persian Gulf War.

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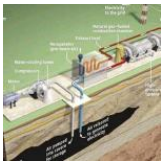

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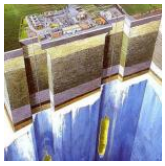

New York State to Require Environmental Impact Statement for Large Scale LPG Storage in NY Watershed

Inergy's MARC 1 Pipeline At Crossroads

RepubFarmer

George Patacki morphed DEC into a water-down version of the Better Business Bureau when he was accidentally elected governor in the 1990's. There are countless gravel pits across the state which were supposed to be re-claimed and that never happened. Business unfriendly?

Patacki's DEC also permitted a "minor" chemical discharge to Westinghouse and other factories at the Horseheads plant location over the years. Today the result is the Kentucky Avenue EPA mitigation site as well as the Koppers Pond Superfund site which has a rich vein of PCB's thanks to the Westinghouse folks. According to the DEC Fishing Handbook, you may eat one fish per month from Koppers Pond due to the presence of PCBs. I bet that fish dinner has a special taste. Chemung County Executive Tom Santulli has been collecting donations from the Town and Village of Horseheads since 2003 to help a local Engineering Firm study the problem. I wonder how Fagan Engineers' study is coming along.? Is that the same Fagan in Schuyler County who thinks fracking is safe.

This is a very insightful article. Possibly DEC should hire Mr. Mantius to help DEC avoid shooting itself in the "feet" on such a regular basis.

I think INERGY and DEC must believe an environmental disaster would be good for the local economy. Think of all the high paid engineers that could eat at local restaurants as they try to figure out how to clean up all the dead fish in the formerly pristine Watkins Glen harbor.

2 days ago Like Reply

Bill Hecht

Wonder what information by Pohn and others of the USGS never made it into the S&W report. Did USGS publish all the research they did in this area back in the 1970's and what exactly was the USGS involvement and why in the S&W report ?

2 days ago Like Reply

Bill Hecht

There are at least three fault types in this are and ll must be looked at, tested and the data made PUBLIC.

2 days ago Like Reply

Bill Hecht

Remember the Watkins Glen hearing where two Inergy geologist were present. With both geologist in front of me I asked them if they found any faults in their research because none were shown in their posters or visuals. Both responded that there were NO FAULTS.Then I asked them if they had read the Stone and Webster report. Neither geologist knew of or had read the report. With that I knew these two "geologists" had not done due diligence and never did a literature search.Should also mention that Linda Collart of NYS DEC three years ago told me that DEC had the Stone and Webster report but she felt a lot of the fault and lineament data was in error. I say prove and show me that Stone and Webster are in error.

2 days ago Like Reply

e.chiron

Excellent coverage of a disaster waiting to happen. We don't know what it's going to take for NY citizens to realize that big money has control of the DEC and many elected officials, but articles like these shed light on it. I hope Watkins Glen is spared this tragedy in the making and that excellent reporting like this has a longer reaching effect on the national issue that this truly is.

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