NEWS & INSIGHT

Indian Point Evacuation Zone

Extending the evacuation zone around nuclear plants

from 10 miles to 50 miles would place New York City

within the range of the Indian Point nuclear plant.

10-mile

radius

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Indian Point

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Entergy Corp. wants to extend by 20 years licenses

that expire in 2013 and

plant 35 miles north of

Indian Point provides on

average about 25 percent of

the electricity used in New

Four New York counties

have plans for clearing

residents in a 10-mile

radius from the site in case

of an emergency such as a

meltdown. Critics say the

procedures fail to account

for real-world hurdles, from

worried parents to icy winter

roads. One school district is supposed to get buses to

outside the area. Parents in

another district are expected

transport students from

to travel congested and

meet their children at a

community college.

The U.S. Nuclear

Outcome

tightly controlled roads to

Regulatory Commission may expand the evacuation

zone to a 50-mile radius,

and work, including

Manhattan. New York Governor Andrew Cuomo

where 20 million people live

wants the plant closed, in

populated area. Entergy

part because of evacuation difficulties in such a densely

stands by the plant's safety.

more than 300,000

midtown Manhattan.

Market Share

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Strategy

2015 for two reactors at its

Indian Point nuclear power

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Indian Point Evacuation Plan Is Seen as Unworkable 'Fantasy'

By Mark Chediak and Edward Klump | April 25, 2011 12:01AM ET

(Bloomberg) - If the plan works, here's how the evacuation will go during a meltdown at Entergy Corp.'s Indian Point nuclear plant north of Manhattan:

Residents will wait at home until they get instructions, parents will let the schools take care of their children, travelers will get immediate word of the emergency, and traffic will flow smoothly along planned routes.

50-mile

radius

Pa.

Graphic: Danny Dougherty

Sources: Entergy Corp. and

data compiled by Bloomberg

The slim likelihood of all that happening makes the plan "a fantasy document," said Daniel Aldrich, a Purdue University associate professor of political science who has studied disaster recovery. The blueprint for how four New York counties would evacuate more than 300,000 residents living within 10 miles of Indian Point fails to consider variables ranging from human nature to icy winter roads, Aldrich and crisis-management specialists said.

Indian Point, because of its location about 35 miles (56 kilometers) from midtown Manhattan, has become a lightning rod for debate since the partial meltdown in Japan following the March 11 earthquake and tsunami. The controversy underscores the challenge facing officials who must figure out how to get thousands of people away from radiation dangers, potentially within hours, Aldrich said.

Eight years before Japan's catastrophe, the Indian Point plan -- which combines procedures developed by Westchester, Rockland, Orange and Putnam counties -was deemed inadequate to safeguard residents in a statefunded study by a firm run by James Lee Witt, a former director of the U.S. Federal Emergency Management Agency.

County emergency officials said they test their plans annually and are confident they will work.

Panicked Parents

While communities made changes in response to the report, they still don't adequately address what people may do beyond the 10-mile evacuation zone, or take into account

parents rushing to pick up children from schools or cars stalling on roads because panicked drivers forget to fill up with gas, said Aldrich, who is based at Purdue's West Lafayette, Indiana, campus.

The U.S. Nuclear Regulatory Commission recommended that Americans within 50 miles of Japan's Fukushima Dai-Ichi nuclear plant evacuate, and is considering expanding the current 10-mile evacuation zones around U.S. plants, Chairman Gregory Jaczko said on April 12.

For Indian Point, a 50-mile evacuation radius would encompass an area in which more than 20 million people live and work, including Manhattan.

Not 'Feasible'

New York Governor Andrew Cuomo has called for the plant to close, in part because trying to evacuate such a densely populated area isn't "even a feasible concept," he said at a news conference last month.

Entergy, based in New Orleans, stands behind the safety of Indian Point, which provides on average about 25 percent of the electricity used in New York City and nearby areas, said Jerry Nappi, a plant spokesman. "In the unlikely event of an accident that causes a release of radiation off site, we feel we are well-prepared and positioned to handle it," Nappi said.

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The company, the second-largest operator of U.S. nuclear power plants after Chicago-based Exelon Corp., is seeking 20- year extensions of licenses that expire in 2013 and 2015 for two reactors at the site. License renewals don't focus on emergency preparedness, which is reviewed on an "ongoing basis through regular oversight," said Ivonne Couret, a spokeswoman for the Nuclear Regulatory Commission.

Four Different Plans

If a radiation leak occurs, officials from the four counties surrounding the plant would be responsible for evacuating their own residents, coordinating with each other and state and federal officials. The state would take over coordination of the evacuation if the governor declares a state of emergency.

The counties declined to provide a copy of their plans -- at least one of which is more than 1,000 pages -- before publication of this article, citing legal reviews of information they may not want released, such as phone numbers.

Planners, taking into account road congestion and bad weather, estimate that everyone in the 10-mile area could be evacuated in about 10 hours, said Nicholas Longo, an emergency planning coordinator for Rockland County.

In a life-threatening situation, however, residents are likely to consult with family before evacuating, delaying departures, said Kathleen Tierney, director of the Natural Hazards Center in the Institute of Behavioral Science at the University of Colorado at Boulder.

"Plans should not be based on how those managing the emergency would like to see people behave," Tierney said.

Human Psychology

Previous emergencies have shown the dangers of not taking human psychology into account. In Louisiana, more than a third of the 971 who died during Hurricane Katrina in 2005 drowned because they either refused or weren't able to follow orders to evacuate before the floodwaters rose, according to a 2008 state study of the disaster.

The next month, too many people fled too soon in Houston as Hurricane Rita bore down, leaving tens of thousands stranded on the freeway in massive traffic jams. The state logged 34 deaths from motor-vehicle incidents out of 139 total fatalities from the storm.

People leaving from outside the evacuation area create a phenomenon called "shadow evacuations," which can hinder those who need to escape most urgently, said Robert Stein, a political science professor at Rice University in Houston who has studied evacuations before disasters including Hurricane Rita.

'Basically Ignored'

For Indian Point, planning for people fleeing from outside the immediate 10-mile zone has been "basically ignored," said Michael Kaplowitz, who serves on Westchester County's Board of Legislators, and is chairman of the Environment and Energy committee.

Families want to stay together during an evacuation, making what happens to children in the schools a pivotal part of any evacuation plan, said Lee Clarke, a professor at Rutgers University in New Jersey who studies emergency planning. Frightened parents descending on schools or searching for children who have been bused away create serious operational implications for any evacuation, he said.

"Everything depends on the schools," Clarke said.

The plan for Indian Point is "untenable, insufficient," said Tom Cole, an assistant superintendent at the Yorktown Central School District in Westchester County. The district's

plan requires buses to come from outside the area to transport students. How that would happen "in the middle of a nuclear panic is anybody's guess," Cole said.

8,700 students to a community college outside the evacuation zone, said Leonard Bernstein, a coordinator of

Parents would be directed to the college to find their children while police tightly control evacuation routes. "I don't think they're going to be able to get near the schools," Bernstein said.

A main weakness of Indian Point's emergency plan is the failure to address real-world scenarios, according to the 2003 Witt report. The study, commissioned by then-Governor George Pataki, found that the public wouldn't be adequately informed of evacuation procedures in an emergency, potentially creating chaos when parents don't know where to pick up children, or when residents don't know which evacuation route to take.

Gridlock

Musegaas, an attorney for Riverkeeper, an Ossining, New York-based environmental advocacy group opposing Indian Point's license renewals. In Rockland County, one evacuation route along U.S. Route 9W becomes steep and narrow as it winds through Bear Mountain State Park and can be closed in the winter because of ice and flooding, he said.

Coordinating the four different evacuation plans is another concern, said Irwin Redlener, director for the National Center for Disaster Preparedness at Columbia University in New York. "This is an area of tremendous confusion and uncertainty, and that is actually dangerous," Redlener said.

Redlener said. The counties, state and plant operators have a joint planning committee and a dedicated phone line to use for coordination in an emergency, said Adam Stiebeling, deputy commissioner of emergency services of Putnam County.

Planning exercises at Indian Point in December 2008, the most recent for which data are publicly available, revealed

Expired Medicine

other weaknesses, such as workers not properly schooled in anti- contamination procedures and expired medications, according to a report last year from the Federal Emergency Management Agency.

Entergy installed a new offsite siren system, provided \$300,000 to help develop a state website with text-message

alerts for emergencies, upgraded software that helps emergency management officials plan evacuation routes, and improved radio and telecommunication systems for emergency planners, said Nappi, the plant spokesman.

professor, said. Plans are written by bureaucrats to satisfy government requirements, he said.

"It doesn't mean the plan is going to work when push comes to shove," Aldrich said. To contact the reporters on this story: {Mark Chediak} in San Francisco at mchediak@bloomberg.net; {Edward Klump}

in Houston at eklump@bloomberg.net To contact the editor responsible for this story: Susan Warren at susanwarren@bloomberg.net



Photographer: Mike Di Paola Indian Point's evacuation plan covers parts of four New

York counties -- Westchester, Rockland, Orange and Putnam.

Children on Buses

At Rockland County's Haverstraw-Stony Point Central School District, buses are supposed to evacuate the district's transportation and emergency management at the district.

County evacuation plans also fail to make provisions for roadways that routinely become congested, said Phillip

Without oversight by one person or agency, inaccurate information might be given or contradictory decisions made,

County officials say they have resolved the anti- contamination and medication problems found.

Preparing a plan that anticipates the unpredictability of a nuclear emergency may be impossible, Aldrich, the Purdue