

# Shutdown was safe

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STAFF EDITOR

Nine seconds was all it took to cripple the majority of the Ontario and northeast United States power grid as a frequency fluctuation wreaked havoc on the system last Thursday afternoon.

In the control rooms of Ontario Power Generation's nuclear plants, immediately following, decisions were being made in moments that would later be analyzed for weeks.

It was the human operators that were charged with deciding between three options. They could:

- take the units into 'poison prevent' stand-down mode at 60 per cent power but they could only do so safely if conditions were optimal;

- take the units to 'zero power hot,' a state where the reactor cannot produce sufficient heat to make steam. It's safer than option one but a full re-start takes about 40 hours;

- or option three, take the reactors to 'guaranteed shut down,' a dead stop accomplished by adding chemicals that make fission reaction impossible. From this state, it can take several days to get the units back on-line.

At the Pickering Generating Station, where the design was not created to go into stay up at 60 per cent for more than a few hours, there was no decision to be made, really. The units were forced into option three -- full shutdown with an expected several day re-start.

At Darlington, where the newer reactor design is more flexible for these types of situations, the operators had big decisions to make, quickly.

In the end, Unit 3 systems were cleared to hold at the stand-down level as operators awaited instruction

from the Independent Electricity Market Operator (IMO) to go into re-start mode. When the call came about 10 p.m. that night, the unit was at the ready to be hooked back up and start pumping power back into the grid. By late Friday, it was operating at full power.

For the other three Darlington reactors the decision was not so simple. In the case of Units 1 and 2, the overseeing operator simply did not have time to verify that all systems were safe to keep the unit operating safely given the many tasks at hand, including ensuring back-up generators were working properly for the entire plant, says Pierre Charlebois, chief nuclear operating officer for OPG.

At Unit 4, when the grid failed, so temporarily did power for a key monitor, which left the unit's chief operator without key information to determine if the necessary conditions existed to keep the reactor at 60 per cent. To be safe, rather than sorry, the call was made to shut it down to power zero. "We prefer the more conservative deci-

sion," says Michel Cleroux, spokesman for the Canadian Nuclear Safety Commission, the federal agency that oversees Canadian nuclear operators.

"Some may say they should have chosen the 60 per cent but they might not say that if an unsafe decision was made."

By Tuesday, all four Darlington reactors were back on line at full power while it won't likely be until next week that the three reactors at Pickering B are fully returned to the grid.

A fourth reactor at Pickering B was already shut down for routine maintenance prior to the blackout.

Ironically, officials at OPG believe the first Pickering reactor back online this week could be one that had been mothballed since 1996 for retrofitting on the A side of the plant. After seven years out of service, Unit 4A was about to be reattached to the grid just as the lights went out. Meanwhile, by Tuesday, the province had about 80 per cent generating capacity at all its power plants back on-line. The United States and Canadian federal govern-



**BIRD'S DELIGHT:** Second place went to Jill Sellers for this entry. The Best Veggie Ribbon went to Jill Sellers for her Butternut squash. Best Decorative ribbon was won by Liz St. Louis for the "Country Lanes" arrangement of wild flowers.



**GHOSTLY GARLANDS:** The category was "Ghosts". Gardeners Pam Taylor, left and Liz St. Louis were the second and first prize winners respectively for their interpretation of the theme in the Colborne and District Horticultural Society summer flower show last Saturday.

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## but costly

ments have formed a task force to review all aspects of the grid failure and the actions taken as a result.

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