

Chronology of LOOP Events Pilgrim Nuclear Power Station

1. Sep 10, 1975 - The reactor automatically scrammed due to a power interruption during a power supply transfer evolution.
2. Sep 13, 1975 - The reactor automatically scrammed when the 345 kilovolt transmission line was lost.
Sep 13, 1975 - The operators were shutting down the reactor when the turbine tripped. During the ensuing in-plant electrical power transfers, blown fuses de-energized the startup and auxiliary 345 kilovolt lines, causing a LOOP and an automatic reactor scram. The emergency diesel generators (EDGs) automatically started and were connected to the safety-related electrical buses. A relief valve (203-2B) opened and stuck open due to steam cutting the pilot valve assembly. The reactor pressure dropped to approximately 300 pounds per square inch gauge.
3. May 1, 1977 - The reactor automatically scrammed on LOOP caused by a forest fire
4. [Feb 6, 1978 \(Nor'easter/Blizzard - Blizzard of 78\)](#) - The reactor automatically scrammed when heavy snowfall caused electrical breakers in the 345 kilovolt switchyard to **flashover** and trip.
Feb 6, 1978 - The reactor automatically scrammed from 24 percent power when high winds and ice buildup caused all transmission lines to fail (causing a LOOP)..
5. Aug 6, 1978 - The reactor automatically scrammed with LOOP due to a storm.
Aug 6, 1978 - The reactor automatically scrammed from 100 percent power when lightning struck transmission lines causing a LOOP. The emergency diesel generators automatically started and connected to their electrical buses. The operators manually started the reactor core isolation cooling (RCIC) and high pressure coolant injection (HPCI) systems to maintain reactor water level. The operators opened a safety relief valve to control reactor pressure. Offsite power was restored about 30 minutes later.
6. Jul 27, 1979 - The reactor automatically scrammed on LOOP power due to a lightning strike.
Jul 27, 1979 - A lightning strike caused a LOOP.
Jul 31, 1979 - The unit was connected to the electrical grid.
7. Aug 28, 1979 -The reactor automatically scrammed when a lightning strike caused a LOOP.
8. Oct 12, 1982 [Licensee Event Report LER 1982-051] - High winds caused salt accumulation on electrical equipment that led to an electrical fault and a LOOP lasting about 1 minute. (records not on NRC webpage: "salt accumulation" "fault" implies flashover)
9. [Feb 13, 1983 \(Nor'easter/Blizzard\)](#) [LER 1983-007 LOOP] - With the reactor shut down, there was a LOOP.Feb 13, 1983 - High winds caused salt accumulation on electrical equipment that led to an electrical fault and a LOOP lasting about 1 minute. (records not on NRC webpage: "salt accumulation and electrical fault" implies flashover)

- Feb 15, 1983 - The unit was connected to the electrical grid to end a 48.2 hour forced outage.
10. Nov 19, 1986 - Ice buildup on electrical equipment caused a fault and a LOOP lasting about 1 minute.
11. Mar 31, 1987 [LER 1987-005] - Heavy winds caused an electrical fault and a LOOP lasting about 1 minute.
12. Nov 8, 1987 - LOOP triggers site stop work order
Nov 9, 1987 - The company halted maintenance activities and sent about 400 contractors home. Nine separate incidents over the prior three day period, two resulting in radioactive contamination of workers, prompted the decision.
Nov 12, 1987 - NRC dispatches Augmented Inspection Team to site to investigate LOOP event.
13. Nov 12, 1987 [LER 1987-014] - High winds caused salt accumulation on electrical equipment that led to an electrical fault and a LOOP lasting 21 hours and 3 minutes. (records not on NRC webpage: "salt accumulation" suggests flashover)
14. Mar 13, 1989 - The reactor was shut down due to a transformer blackout caused by a solar magnetic storm.
Mar 16, 1989 - The unit was connected to the electrical grid. An administrative order limited the reactor power level to 25 percent.
15. Oct 30, 1991 (Nor'easter/Hurricane: "Perfect Storm") [LER 1991-024] Loss of Preferred and Secondary Offsite Power Due to Severe Coastal Storm While Shutdown - The operators shut down the reactor when a severe storm blew seaweed into the intake structure, clogging the circulating water pumps, and causing a loss of condenser vacuum.
Oct 30, 1991 - Weather-related LOOP lasting 120 minutes (switchyard flashover reported in LER)
16. Dec 13, 1992 (Nor'easter/Blizzard) [LER 1992-016] Automatic Scram Resulting From Load Rejection at 48 Percent Reactor Power - The reactor automatically scrambled on a generator load rejection caused by flashovers in the switchyard due to salt deposits during a severe storm.
Dec 18, 1992 - The unit was connected to the electrical grid to end a 116.4 hour forced outage.
17. Mar 13 1993 (Nor'easter/Superstorm/Blizzard - Storm of the Century) [LER 1993-004] The reactor automatically scrambled on a generator load rejection caused by flashovers in the switchyard due to wind-packed snow during blizzard conditions.
Mar 13, 1993 - Weather related LOOP lasting 1 minute.
Mar 17, 1993 - The unit was connected to the electrical grid to end a 84.5 hour forced outage
18. Sep 10, 1993 [LER 1993-022] - The reactor automatically scrambled after lightning strikes caused switchyard breakers to open.
Sep 10, 1993 - LOOP lasting 10 minutes.
Sep 12, 1993 - The unit was connected to the electrical grid to end a 43.7 hour forced outage.

19. [Dec 19, 2008 \(Nor'easter/Blizzard\)](#) [LER 2008-006; LER 2008-007]- The reactor automatically scrammed when a winter storm caused icing in the main switchyard. [\(switchyard flashover reported in 1/26/15 Supplemental Inspection Report\)](#)

20. [Feb 8, 2013 \(Nor'easter/Blizzard - Nemo\)](#) [LER 2013-003]- The reactor automatically scrammed at 9:17 pm when a blizzard caused LOOP. [\(switchyard flashover reported in 1/26/15 Supplemental Inspection Report\)](#)
Feb 9, 2013 - Workers restored offsite power to the site at 6:09 pm.
Feb 10, 2013 - Offsite power to the site was lost at 2:02 pm.
Feb 12, 2013 - Workers restored offsite power to the site at 4:05 am.
Feb 15, 2013 - The reactor was connected to the electrical grid at 10:39 pm to end a 169.37 hour forced outage.

21. Oct 14, 2013 - The reactor automatically scrammed due to LOOP caused by failure of an offsite tower support during modification of one of the 345 kV offsite lines.
Oct 21, 2015 - Reconnected to the grid

22. [Jan 27, 2015 \(Nor'easter/Blizzard - Juno\)](#) Forced Outage due to LOOP. Switchyard [flashovers](#) reported.
Feb 8, 2015 - Restarted to 79%; Reached 100% on Feb 10, 2015.

Precautionary Shutdown, no LOOP

[Feb 15, 2015 \(Nor'easter - Neptune\)](#) Precautionary shutdown in advance of Nor'easter Neptune and an anticipated LOOP.

Feb 18, 2015 - Restarted to 18%; Complications delayed ramp up; Reached 100% on Feb 22, 2015.

Summary by cause:

- Power Supply Transfers - 2 times
- Offsite Tower Support Failure - 1 time
- Lightning Strikes - 4 times
- Forest Fire - 1 time
- Solar Storm - 1 time
- High Winds - 3 times
- [Nor'easters/Blizzards, Ice, Snow with switchyard flashovers](#) - 8 times
- **Total = 21 times**

- [Precautionary shutdown prior Nor'easter/Blizzard](#) - 1 time

The information gathered from the NRC website and "A List of Events" by Dave Lochbaum from 1965 to May 30, 2013 found on the Pilgrim Coalition website under "Shutdown Tracker" Lochbaum Note: This report contains information about events that happened - not events that did not happen. In other words, just because an event is NOT listed in this report does not mean it did not happen. It might be that the ongoing research effort that yielded this report has not yet recorded the event.

