

1983

NUCLEAR MISHAPS

- There were 5,060 mishaps at the nation's nuclear power plants in 1983.
- 247 events were considered particularly significant by the Nuclear Regulatory Commission.

OUTSTANDING EVENTS

Salem. In February, the worst accident since Three Mile Island crippled the plant's automatic shutdown system.

Brunswick. In February, it was discovered that both units had failed to carry out routine testing of safety features for as long as 5-7 years.

Grand Gulf. In September, a major fire occurred as a result of a ruptured fuel line. Operators were unable to cope with the situation because the fire protection system was inoperable.

Maine Yankee. In January, a severe water hammer ruptured a secondary piping system.

Quad Cities and Hatch. In March, reactor control rods were improperly inserted. The NRC laid the blame on poor management control.

Shoreham. In August, emergency backup power generators failed because of design and quality deficiencies. These same generators were in use at Grand Gulf, San Onofre 1, and Rancho Seco, as well as at seven reactors under construction at the time.

Turkey Point. In April, the NRC discovered that the reactor was functioning at full power without the backup systems necessary to avoid major damage to the reactor core.

OTHER FINDINGS

- 85,646 workers, more than ever before, were exposed to a record high 56,507 person-rems of radiation. 8% more, 1,324 people, were exposed than in 1982.
- Commonwealth Edison operated 3 of the 5 plants with the highest worker contamination.
- A record number of fines, 49, were imposed by the NRC in 1983.
- Over 50% of nuclear workers were exposed to more than 500 millirems, 3 times the maximum amount allowed for the general public.
- Five of the six major security threats in 1983 appeared to be sabotage by plant insiders.
- Public Citizen found that the Institute for Nuclear Power Operations (INPO), an industry group which collects information about power plant performance, will not open its files to the public. This constitutes, in effect, a loophole in the Freedom of Information Act.

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Beginning on January 1, 1984, the NRC revised its event reporting system. The new system relies on Licensee Event Reports (LER) by which utilities report accidents at nuclear power plants. The new LER system yields about half as many events being reported, according to the NRC, but each report is more detailed about the nature of the event. Trivial events, according to the NRC, are absent.

- In 1984 there were 2,417 Licensee Event Reports.

- On the average, each plant experienced 29 events—about 2.5 events each month.

- The ten plants with the most reported events were:

WPPSS 2	128	Grand Gulf 1	61
LaSalle 1	92	Callaway 1	50
LaSalle 2	92	Summer 1	50
San Onofre 2	79	Susquehanna 1	49
Sequoyah 1	75	Duane Arnold	44

OUTSTANDING EVENTS

Hatch. In February, cracks were found in pipes. The cracks seriously limited the ability of the plant to contain the immense pressures that build up during an accident involving the loss of cooling water.

Big Rock Point. In February, workers discovered that valves designed to release pressure in a loss-of-coolant accident did not work.

San Onofre 3. For 13 days in March, valves were in the wrong position, rendering both emergency core cooling systems virtually useless.

Browns Ferry 1. In August, during testing, several emergency core cooling system valves were in the wrong position due to operator errors and malfunctioning equipment.

Fort St. Vrain. In June, 6 out of 37 control rods failed to insert and properly shut the plant down when it was operating at 23% power. The plant's shutdown systems had been having problems for at least two years, but Fort St. Vrain was allowed to continue operating.

Susquehanna 2. In July the plant lost all of its AC power, including its back-up emergency diesel generators resulting in the deterioration of crucial instrumentation.

Haddam Neck. In August the refueling cavity water seal failed. The incident betrayed a "major deficiency in design," according to the NRC.

Susquehanna 1. In October, four control rods failed to insert and nine others hesitated before scrambling. Testing which should have brought the problem to light was 15 months overdue.

McGuire 1. In November, valves malfunctioned which inject water into the core in the event of a loss of coolant accident, rendering the emergency system inoperable.

Indian Point 2. In December, all three safety injection pumps were inoperable because of solidified boric acid in the piping.

OTHER FINDINGS

- Average Capacity Factor in 1984 was 57% per cent. All nuclear power plants together ran at only 57% of capacity during the year.
- An astounding 98,162 nuclear workers were poisoned by radiation in 1984—13,000 more than in 1983.
- At four plants, workers were radiated while no electricity was generated, producing infinite cost/benefit ratios. The plants were Pilgrim 1, Robinson 2, Three Mile Island 1, and Three Mile Island 2.
- 31 fines were levied against nuclear utilities in 1984. Total fines amounted to \$2,054,000.
- There were 518 scrams (a sudden, violent plant shutdown) in 1984, an average of 6.5 per plant.
- The ten sites rated lowest according to the NRC's overall assessment of performance were:

Browns Ferry	Crystal River 3
Grand Gulf 1	Hatch
Davis-Besse	Rancho Seco
Fort St. Vrain	Salem
Arkansas	Cook

1985

NUCLEAR MISHAPS

- In 1985 there were 2,974 Licensee Event Reports.
- On the average, each plant experienced 33 events—a 13% increase over 1984.

- The ten plants with the most reported events were:

Byron 1	101	Catawba 1	71
Dimerick 1	100	Cook 1	71
Palo Verde 1	89	LaSalle 1	69
Wolf Creek 1	84	Brunswick 1	67
Fermi 2	81	WPPSS	62

OUTSTANDING EVENTS

Summer. In February, the plant underwent an inadvertent nuclear reaction. Inexperienced operators and negligent management oversight caused the incident.

Grand Gulf. In June, the NRC discovered "deficiencies in the reactor operator training program." The utility also made "material false statements to the NRC."

Davis-Besse. In June, the plant lost both its main and auxiliary feedwater systems. This sequence of events was fearfully similar to the Three Mile Island accident in 1979. The major difference was that operators realized what was happening earlier than the operators at TMI. The NRC has finally closed the plant for repairs, even though it knew about the problems which precipitated the event for many years.

LaSalle 1 & 2. Numerous personnel, equipment, and regulatory problems since the opening of the plant, were attributed by the NRC to "deficiencies in management controls."

Maine Yankee. In August, three quarters of the gauges that monitor the steam generator were inoperable. The NRC considered this a "major degradation of essential safety-related equipment."

OTHER FINDINGS

- 38 fines were levied against nuclear utilities in 1985. Total fines amounted to \$3,756,925; \$1.7 million more than 1984.
- There were 601 scrams (a sudden, violent shutdown) in 1985, an average of 6.5 per plant.
- At the end of 1985, Fort St. Vrain nuclear plant had a lifetime capacity factor of 15—meaning it produced power at only 15% of its capacity.
- The Tennessee Valley Authority, the nation's third largest nuclear utility, had all of its nuclear power plants shut down in 1985 because of mismanagement.
- The ten sites which rated lowest according to the NRC's overall assessment of performance were:

Browns Ferry	Cook
Byron 1	Davis-Besse
LaSalle	Sequoyah
Palisades	Turkey Point
Grand Gulf	Crystal River

The Critical Mass Energy Project is Public Citizen's energy policy arm. Its work has focused on opposing nuclear power and promoting safe energy alternatives.