

# What's Happening

I N T H E W O R L D ?

BY LAWRENCE GABLE

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**A**round the world people are horrified to see the damage that the earthquake and tsunami did in Japan. They are also fearful about the radiation leaking from nuclear reactors there. They remember the nuclear disaster that took place exactly 25 years ago at Chernobyl in Ukraine. It was the greatest human-made disaster in history.

Chernobyl was an ancient town, and people had been living there for 800 years. At the time of the accident 13,000 people lived there. The nuclear power station was located in Pripyat, a city of 50,000 inhabitants ten miles away.

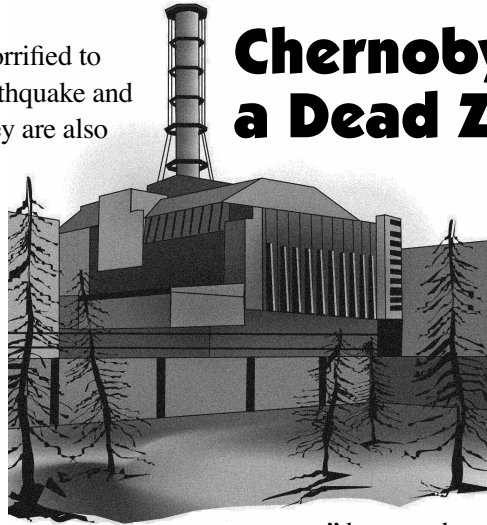
The site had four nuclear reactors. In April 1986 engineers performed a safety test on reactor No. 4. They made mistakes that caused the reactor's core to overheat. That caused a surge in power, which led to an explosion that blew the thousand-ton steel cover off the reactor. The roof collapsed and radiation escaped high into the atmosphere.

Quickly fires also broke out. The government sent local firefighters and soldiers to the plant. They had no protection from the high levels of radiation, which killed two dozen of them almost immediately. The fire in the reactor's core burned for ten days. Its flames reached 300 feet into the air, and temperatures reached 5,000° Fahrenheit. The fire sent even more radioactivity into the atmosphere.

The radiation spread across Europe. Scientists in Sweden were the first to notice it and announced their findings. At that time Ukraine was part of the Soviet Union. The Soviet government finally admitted that the accident had occurred. After many days had passed, authorities finally used cement to seal off the reactor's radioactive core. In the meantime, though, eight tons of radioactive material had escaped.

Soviet authorities did not want to acknowledge the problems at Chernobyl, not even to the local residents. They waited more than a day to evacuate the area, and they told the people that they would return after a few days. By the end of 1986, though, 116,000 had left their homes. The government evacuated an additional 230,000 people from Ukraine, Belarus and Russia in the

## Chernobyl Remains a Dead Zone



following years. Pripyat and Chernobyl no longer exist, and nearly 200 small towns in the region are gone too.

The government formed an “exclusion zone” around Chernobyl. It extends 20 miles in every direction from the power plant. It is also called the “dead

zone” because human activity there has nearly ceased. Nobody is allowed there without special permission, so there are checkpoints for people like scientists and reporters who enter the zone. Humans will not be able to inhabit the area safely for many hundreds of years.

The radiation from Chernobyl has resulted in deaths and sickness. People all around the region have unusually high levels of cancer. Ukraine estimates that 8,000 people died in the accident and during the cleanup. In addition, the World Health Organization estimates that the disaster led to as many as 9,000 extra cancer deaths in the region. The environmental organization Greenpeace issued a report that goes far beyond those numbers. It considered the health of people all over Europe and said that the actual number of deaths from cancer will be 93,000.

Doctors report that radiation from Chernobyl has caused long-term health problems. People who were children in 1986 ate vegetables and drank milk that had been poisoned with radiation. Now they are weaker than their parents and grandfathers were. Their immune systems are weak, and they suffer from many problems with their intestines, hearts and lungs. Some children of parents who lived there have been born with genetic mutations.

The earthquake and tsunami in Japan on March 11 did damage to the Fukushima nuclear plant. It has been leaking radiation, and workers there have not been able to stop it. Already scientists have found some radiation in water and vegetables. Nobody expects a nuclear disaster there like at Chernobyl, but it is hard not to think about what happened 25 years ago and the horrible things that followed.

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Chernobyl was an ancient town, and people had been living there for 800 years. At the time of the accident 13,000 people lived there. The nuclear power station was ten miles away in Pripjat, a city of 50,000.

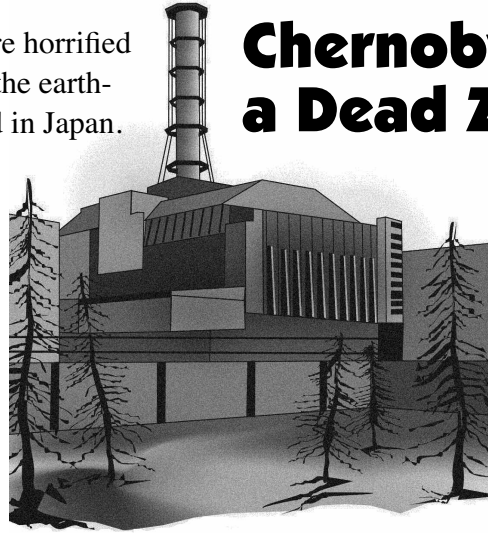
The site had four nuclear reactors. In April 1986 engineers performed a safety test that caused one reactor's core to overheat. That led to an explosion that blew the steel cover off the reactor. The roof collapsed and radiation escaped high into the atmosphere.

Quickly fires also broke out. The government sent local firefighters and soldiers to the plant. Two dozen of them died almost immediately from the high levels of radiation. The fire in the reactor's core burned for ten days. Its flames reached 300 feet into the air, and temperatures reached 5,000° Fahrenheit. The fire sent even more radioactivity into the atmosphere.

The radiation spread across Europe. At that time Ukraine was part of the Soviet Union. When scientists in Sweden noticed it, the Soviet government admitted that the accident had occurred. The authorities finally used cement to seal off the reactor's core. However, eight tons of radioactive material already had escaped.

Soviet authorities did not want to acknowledge the problems to the local residents. They waited more than a day to evacuate the area. Even then they told people that they would return after a

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few days. By the end of 1986, though, 116,000 people had left their homes. In the following years 230,000 more had to leave. Pripjat and Chernobyl no longer exist, and 200 small towns are gone too.

The government formed a 20-mile "exclusion zone" around Chernobyl. It is also called the "dead zone" because human activity there has nearly stopped. People like scientists and reporters need special permission to enter the zone. Humans will not be able to inhabit the area safely for many hundreds of years.

The radiation from Chernobyl has resulted in deaths and sickness. Ukraine says that 8,000 people died in the accident and during the cleanup. International organizations report that the disaster led to as many as 9,000 extra cancer deaths in the region. Across all of Europe the number may reach 93,000.

Doctors report that radiation from Chernobyl has caused long-term health problems. People who were children in 1986 ate vegetables and drank milk that had been poisoned with radiation. Now they are weaker than their parents and grandfathers were. Their immune systems are weak, and they suffer from many problems with their intestines, hearts and lungs.

Japan's Fukushima nuclear plant has been leaking radiation. Workers there have not been able to stop it, and already scientists have found some radiation in water and vegetables. Nobody expects a nuclear disaster there like at Chernobyl, but it is hard not to think about the horrible things that happened there 25 years ago.

# Background Information

The Fukushima nuclear plant lies 150 miles north of Tokyo.

The first two reactors at Chernobyl were built between 1970 and 1977. The third and fourth ones were completed in 1983.

Pripyat was a new town that had grown up with the nuclear power station. Most of the plant's workers lived there. Ukraine did not close the final reactor until December 2000, and it had about 3,400 workers. They lived in a new town just outside the exclusion zone.

Ukraine's government has designated 15,000 square miles as contaminated, about the size of Switzerland.

Until the plant at Chernobyl closed for good, crews could only work for a few minutes at a time due to the high radiation levels.

The Soviet government dug unlined, leaky trenches and filled them with radioactive waste in 1986. Nobody knows where they all are, or exactly what is in them. Many of the burnt trees are in them, as is firefighting equipment.

The Chernobyl explosion put 400 times more radioactive material into the atmosphere than the atomic bomb dropped on Hiroshima in 1945.

The reactor's remains are currently contained within a larger "sarcophagus" that was built late in 1986. It is filled with cracks, and water leaks into it when it rains. There are plans to build a 345-foot tall steel arch over it.

A few hundred people have returned to the exclusion zone and live there illegally.

The organization Greenpeace suggests that ultimately there will be 270,000 cases of cancer from Chernobyl's radiation, and that deaths from other illnesses could raise the number of deaths to 200,000.

One-fourth of Belarus was severely contaminated by the Chernobyl disaster. A large part of Chernobyl's exclusion zone within Belarus has been officially turned into a nature reserve.

Wildlife has returned to the zone because radiation seems to have had little effect on animals like boar, birds and foxes. The natural forest has reclaimed much of the land too, even though the pine forest near the reactor had died.

## Topics for Discussion and Writing

### Pre-reading:

- Tell what you have heard about the problems with Japan's nuclear reactors since the earthquake on March 11.

### Comprehension:

- Describe some short-term and long-term effects of the Chernobyl disaster on humans.

### Beyond the Text:

- Where is the closest nuclear power plant to where you live?
- Do you think that getting power from nuclear reactors is worth the risks that are involved?
- Why do you think that some people have returned to live in the exclusion zone, even though it is unsafe and illegal?

## Vocabulary (\*advanced article only)

*Article-specific:* tsunami; radiation; nuclear reactor; surge\*; to evacuate; "exclusion zone"; checkpoint; immune system; mutation\*

*High-use:* horrified; disaster; inhabitant\*/to inhabit; to collapse; atmosphere; to extend\*; to cease\*; to estimate\*

## Sources

*New York Times* March 20, 2011

*The Observer* (London) March 26, 2006

*The Guardian* (London) April 27, 2006; April 30, 1986

International Atomic Energy Agency [www.iaea.org](http://www.iaea.org)

U.S. Nuclear Regulatory Commission [www.nrc.gov](http://www.nrc.gov)

## CA Curricular Standards (4–12)

### English-Language Arts

*Reading* 1.0 Vocabulary Development  
2.0 Comprehension (Informational Materials)

*Writing* 1.0 Writing Strategies  
2.0 Writing Applications

### ELD—Intermediate and Advanced

Reading Vocabulary Development/Comprehension  
Writing Strategies and Applications  
Listening and Speaking

### History-Social Science

10.8; 11.7