

Chernobyl

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Background Information

- Nuclear power plant in Ukraine
- Opened in September of 1977, and was in use until April 1986
- At the time of the disaster it was generating 10% of Ukraine's electricity
- Death toll of 31
- The attempt to decontaminate this area cost 68 Billion
- Resulted in a 2600 km² exclusion zone surrounding the power plant





Key Issues

- Didn't have correct features to prevent instability
- The reactor was unstable
- Weak safety guidelines
- Operators were not properly informed
- Nearby populations were not warned of radiation





Ethical Issue: Flawed Regulations

- Not informing the population around the plant
- Ignored safety protocol leading Chernobyl costing 68 billion to clean up.
- No checks in case of disaster
- The Chief engineers of the powerplant did not adhere to safety guidelines



Ethical Issue: Known Flawed Reactor Design

- Chernobyl was an original RBMK Soviet Designed reactor
- The Void Coefficient which refers to the change in reactivity of the reactor from the voids of the reactor(F.E. steam) from the coolant or moderator of the reactor.
- Positive void coefficients mean that the reactor becomes more reactive with the addition of these voids.
- Chernobyl had an extremely high void coefficient (4.7)
- It was cheaper to run and produce power but it was very unstable.
- RBMK Reactors lacked a protective Concrete-Steel Containment structure to keep in radioactive emissions.



Known Facts

- Radiation was detected throughout Scandinavia
- Soviet Union tried to cover up the incident
- Reactor design was unstable and unsafe
- The cleanup was much deadlier than the original blasts
- In the first three months there were 31 casualties





Unknown Facts

- Didn't know the generator wouldn't immediately boot up
- People can still die from radiation in Chernobyl
- Radiation wasn't shown to cause an increase of cancer
- Doctors advised pregnant women living nearby to undergo abortions so that there kids have no birth defects.



Different Outcomes

- If the problem was solved how would the outcome be different?
- If there was no disaster, deaths as well as issues that came up would not have happened.
- If the staff followed safety protocols, they would still be here
- If they put safety before operation costs they could have saved lives
- Nuclear power more widely used than today, decreasing use of fossil fuels.



Bibliography

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