

## Week 10 — Readings

## Fukushima and the inevitability of accidents

- Indicates the risks we run when we allow high concentrations of energy, economic power, and political power to form.
  - “Because that possibility is always there, it is important to ask whether some industrial systems have such huge catastrophic potential that they should not be allowed to exist”
1. Regulations
    - Japan should put nuclear regulation the hands of a government independent figure and not in private industry where it won’t be seriously considered
    - Regulators at WV plant saw nothing wrong with the plant then OSHA came and found the opposite
    - Later they violated again storing massive amounts of gas and OSHA didn’t catch it but US Chemical Safety Board did
    - Lots of politics in regulations:
      - Sen. Pete Domenici funded by nuclear companies called NRC people and threatened them if they didn’t reduce their regulations
      - “regulatory capture”
    - “Regulations are only as good as their enforcement, and here the evidence is fairly uniform: Enforcement is generally lax and often all but nonexistent. Workers at Fukushima reported that they had advance warnings of inspections, and inspectors regularly winked at violations”
  2. Warnings
    - The most credible ones are specific and in-house
  3. Coping
    - Generally, the first-responders handle the situation well but other cases not so much
    - Containment (do not let scientists near it, deny it)
    - Controlling the narrative
    - “That theory says that even if we had excellent regulation and everyone played it safe, there would still be accidents in systems that are highly ‘interactively complex,’ and if the systems are tightly coupled, even small failures will cascade through them.” 50
    - Complex systems like nuclear reactors have so many nonlinear system properties that if multiple failures happen at once, no one could anticipate it
    - “The consequences of an individual’s failures can only be catastrophic if they are magnified by organizations. The larger the organizations, the greater the concentration of destructive power. The larger the organizations, the greater the potential for political power that can influence regulations and ignore warnings.” 51

## Three Mile Island: A Nuclear Crisis in Historical Perspective

- The safeties worked as designed but the culmination of issues was not something the operators were prepared for
- From the time the accident occurred, the workers had the public safety of the residents are the forefront of their mind
- The extensive reforms that the nuclear industry and the NRC introduced within a short time after TMI did not resolve all nuclear safety issues 242
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