Overly Conservative Regulations Have Been Considered to be Not Harmful But They Can Be Harmful A Balance Between Protection and Harm Must be Found

Finding the Right Balance

Establishing Optimal Regulations

Valid Scientific Basis Required to Protect Humans and the Environment

- Many Scientific Disciplines Required
  - Nuclear Physics
  - Health Physics
  - Nuclear Engineering
  - Hydrology
- Disciplines Must be Integrated

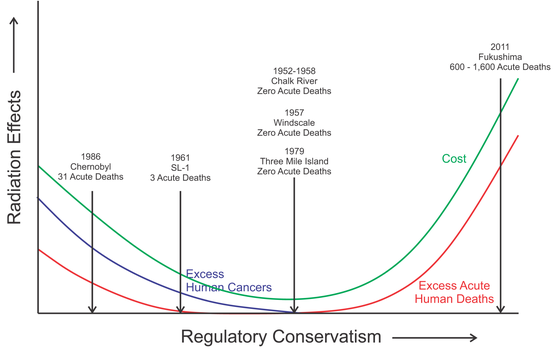
Sociological Parameters Must be Considered

- Population Distribution
- Community Impact
- Public Acceptance
- Regulator Acceptance
- Cost

A Common Agreement With Respect To "Optimal" Must be Established

- Is a Death Caused by Unnecessary Evacuation Equivalent to One Caused by Radiation-Induced Cancer?
- How Do We Decide Whether to Spend on Stoplights Near Schools Now or Reducing Cancer 10 Thousand or A Million Years From Now?

Range of Regulatory Consequences



Impact of Regulatory Decisions

Excess Human Cancers

Non-Conservative Regulations
- Industrial Exposure and Accidents
- Environmental Releases
- Medical Exposures Excluded

Optimal Regulations
- Excess Human Cancers Comparable to Background

Excessive Regulations
- No Impact

Excess Acute Human Deaths

Non-Conservative Regulations
- Caused by Accidents
- Fairly Easy to Prevent With Regulations

Optimal Regulations
- No Excess Acute Human Deaths

Excessive Regulations
- Creates Inappropriate Fear of Radiation
- Fear can Can Cause Panic Resulting in Excess Human Deaths
- Mis-appropiation of Funds Can Drain Public Safety Programs

Cost

Non-Conservative Regulations
- Medical Treatment and Cleanup

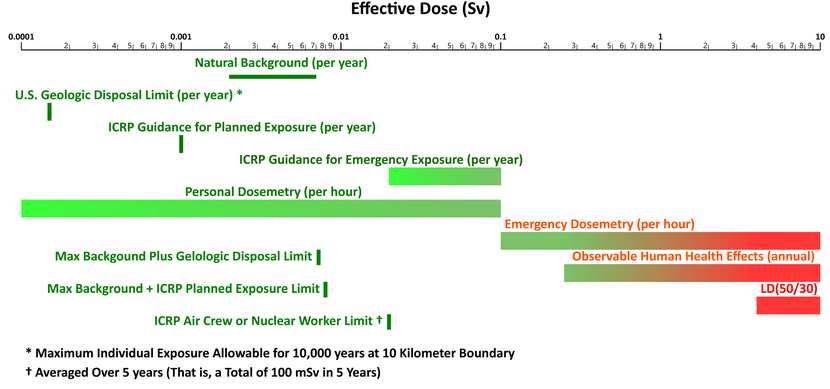
Optimal Regulations
- Regulatory Administrative Costs

Excessive Regulations
- Unnecessary Evacuations and Cleanup
- Unnecessary Waste Treatment
- Unnecessary Site Remediation

Radiation Protection

The impact of a radiation exposure on an individual is complex, dependent on many variables inluding radiation type and dose rate and the age, livestyle, and health, of the individual. However, some generalizatons are possible: an extremely low annual dose will have little health impact, and a very high dose over a short time will result in death. These seem to be important considerations when making decisions with respect to adequately protecting people from radiation without experiencing negative unintended consequences.

The figure below attempts to put this in perspective.



*** Maximum Individual Exposure Allowable for 10,000 years at 10 Kilometer Boundary**

† Averaged Over 5 years (That is, a Total of 100 mSv in 5 Years)