The Price-Anderson Act and the Three Mile Island Accident

OECD/NEA Workshop

Nuclear Damages, Liability Issues, and Compensation Schemes
Overview

• Overview of Nuclear Liability in U.S.
• Three Mile Island Accident
  – Timeline of Accident
  – Response
• Nuclear Liability for TMI Accident
  – Implications for Price-Anderson Coverage
  – Claims and Payments
• Lessons for Today
Price-Anderson Act Overview
Price-Anderson Act

- Purposes:
  - Encourage private development of nuclear power
  - Establish legal framework for potential liability claims
  - Provide ready source of funds to compensate victims

- 1957: Price-Anderson Act
- 1975: Secondary financial protection layer
- 2005: Extended through 2025

- 1966: Strict liability for major accidents
- 1988: Procedure for paying damages beyond limits
Public Liability

• “Public liability” is personal injury or property damage to persons or property located away from the reactor site (off-site) from a nuclear incident

• A nuclear incident is:
  – Any occurrence causing bodily injury, sickness, disease or death, or damage to property
  – Arising out of or resulting from the radioactive, toxic, explosive or other hazardous properties of
  – Source, special nuclear, or by-product material
Omnibus Coverage

• Price-Anderson financial protection provides universal coverage
  – Define “insured” as “anyone who may be liable”
  – To be liable is to be insured
• Coverage protects:
  – Licensees
  – Contractors, vendors and suppliers
  – Lessors or other investors in a nuclear reactor
• Exclusive remedy
  – Economic channeling to required insurance policies
Primary Financial Protection

• Each operator of large nuclear power plant (>100 MW) must maintain primary financial protection
  – Applies to public (off-site) liability claims
  – Coverage = maximum liability insurance available at reasonable cost and on reasonable terms from private sources

• Purchase insurance from a pool of stock companies:
  – American Nuclear Insurers (ANI)
  – “Facility Form” for nuclear energy liability policy provides evidence of coverage
Primary Financial Protection Policy Limits

$ in Millions

1957: $60
1966: $74
1969: $82
1972: $95
1974: $110
1975: $125
1977: $140
1979: $160
1988: $200
2003: $300
2010: $375

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Secondary Nuclear Liability Insurance

• Every reactor operator must participate in a secondary (excess) insurance plan
  – If primary insurance exceeded, all nuclear operators required to pay deferred (“retrospective”) premium
    • Maximum deferred premium and limits annual deferred premiums (for each unit, per incident)
    • Subject to a 5% surcharge if funds to pay claims and litigation costs are insufficient

• Significant funds available from pool of all reactor operators
  – Total amount available linked to number of operating reactors
Liability Limit

• Aggregate public liability for single nuclear accident
  – Primary + secondary financial protection
  – $375 million + $121 million x 104 reactors = ~$13 billion

• If sufficient funds not available:
  – President must submit report and proposals for compensation to U.S. Congress.
  – Congress authorized to provide full and prompt compensation

• Stafford Disaster Relief and Emergency Assistance Act
Liability Limits

- **1957**
  - Government Indemnity: $375
  - Primary: $60

- **1977**
  - Government Indemnity: $110
  - Secondary: $300
  - Primary: $140

- **2002**
  - Secondary: $9,338
  - Primary: $200

- **2013**
  - Secondary: $13,600
  - Primary: $375
Summary of Coverage

Primary and Secondary Insurance
- Public Liability
- Excludes “Acts of War” but covers terrorism
- Includes offsite environmental for ENO or transport accident

Required Property Insurance
- Losses to nuclear facility, including land, buildings, equipment
- On-site environmental clean-up

Other Policies
- Accidental Outage
- Master Workers Policy
- Suppliers’ and Transporters’ Policy
- Offsite environmental cleanup (non-ENO)
Three Mile Island Accident
Three Mile Island

• Two-unit PWR station:
  – TMI-1: 800 MWe (1974)
  – TMI-2: 906 MWe (1978)
• Located near Harrisburg, Pennsylvania
• Accident begins at 4 am
  – Plant trips when cooling water pump stops functioning
  – Unknown to operators, valves for backup pumps have been closed
  – Pressure relief valve in the reactor opens as designed, but later fails to close
  – Cooling water released and eventually the core is uncovered
• Core damage worse than initial indications:
  – Hydrogen gas buildup in containment
  – Minor radiation release from auxiliary building to relieve pressure on the primary system
Accident - March 29-April 1, 1979

• Governor of Pennsylvania:
  – First, directs people within 10 miles to stay inside
  – Then, advises pregnant women and preschool children within five miles of TMI to evacuate
  – Nearly 200,000 residents evacuate

• “Threat of catastrophe” over on April 4
• Order lifted on April 9
The Aftermath

• May 1979 – Reactor placed in “cold shutdown”
• July 1979 – Radioactive Krypton gas purged from the reactor building to prepare for cleanup crews
• October 1985 – Process of defueling reactor begins
• Late 1993 – TMI-2 placed in monitored storage
Nuclear Liability and TMI
Some Funds Available Quickly

- Advanced money to evacuated families to cover living expenses
- Immediately paid pregnant women and pre-school age children who evacuated five-mile area
  - 3,000 claimants
  - $1.4 million for living expenses and lost wages
Immediate Litigation and Partial Settlement

• Within weeks, class action filed for businesses and residents within 25 miles of the plant
  – >2,000 personal injury claims
  – Other claims: lost wages, evacuation costs, loss of property value, loss of profits

• September 1981 – partial settlement (not injury cases)
  – $20 million for economic harm
  – $5 million for the establishment of a Public Health Fund

• Examples:
  – Most businesses: two weeks of gross profits
  – But, for those nearest TMI, damages more complex and payments relied on expert appraisals
 Additional Payments

• February 1983 – $2.35 million in evacuation loss claims and wage loss claims to 10,993 claimants
• February 1984 – Payments to local governments:
  – $250,000 payment to Pennsylvania
  – $235,000 payment to municipalities within 25 miles
• In 1985, $14.25 million to settle bodily injury and emotional distress claims for 280 people
Total Payments for TMI Accident

- Class Action Settlements: $34 million
- Legal Expenses: $29 million
- Health Studies: $5 million
- Evacuation Costs: $1 million
- Other Settlements: $1 million

Total Payout for TMI = $71 million
TMI-2 “Clean-Up”

• Total TMI-2 “clean up” cost was $975 million
  – Ratepayers ~$125 million
  – Property insurance $300 million
  – Some research funding
  – Balance by shareholders

• TMI-1 restarted in 1985
  – Still operating
  – Licensed through 2034

• TMI-1 and TMI-2 will be decommissioned at same time
TMI Lessons for Nuclear Liability
Lessons from TMI for Nuclear Liability

• Offsite releases were small; offsite damage very limited

• Emergency Preparedness
  – Participate in Emergency Planning exercises
  – Coordinated response and communications

• Liability scheme worked as intended
  – Legal framework functioned effectively
  – Ready source of funds available
  – Precedent can be applied in future
Questions?
Tyson Smith is a partner in the firm's Washington, DC and San Francisco offices who has concentrated his legal practice in the area of nuclear energy regulation since 2003.

Mr. Smith represents and provides advice to clients regarding compliance with the regulations of the U.S. Nuclear Regulatory Commission. He has been extensively involved in initial licensing of new nuclear facilities, including commercial power reactors and uranium enrichment facilities. He regularly assists clients throughout the nuclear fuel cycle in licensing, compliance, and enforcement matters.

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