



Communicating Engineering Solutions and the Concept of Risk to the Public

Christopher S. Bajwa, PE

**Division of Spent Fuel Storage and Transportation
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission**

**American Society of Mechanical Engineers
Pressure Vessels & Piping Conference
July 22, 2006
San Antonio, TX**

Objectives

- What is “Risk Communication”?
 - Basic principles for success
- Understanding stakeholders
- Effecting public policy
- A case study: technical reports
 - Group exercise
- Conclusions
- Questions



What is Risk Communication?

Risk communication is an interactive process used in talking or writing about topics that cause concern about health, safety, security, or the environment.

But what is risk...?



Common Definitions for Risk

- Risk = Probability x Consequences
 - Likelihood of occurrence x how much it hurts
- Risk = Hazard + Outrage*
 - Something bad can happen x how mad it makes me



- Magnitude of hazard
- Lack of understanding
- Distrust of the institution or individuals that manage it

* From Dr. Peter Sandman, www.psandman.com

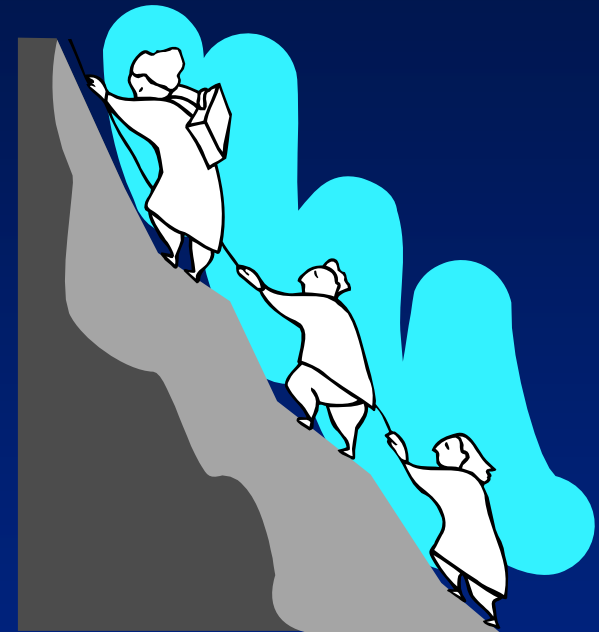
Why Bother??



- The value of risk communication:
 - Link risk analysis, risk management, and the public
 - Reconcile differing perceptions of risk
 - Gain an appreciation of stakeholder's views
 - Affect public policy through communications with lawmakers

How do we do it?

- Form a team
- Establish objectives
- Plan
- Prepare
- Communicate and involve
- Evaluate and improve



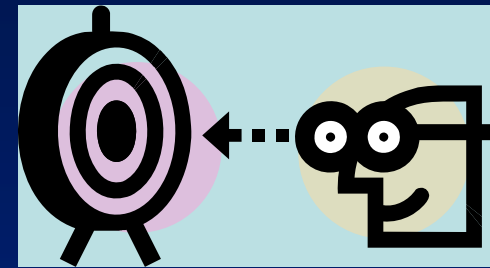
Forming a Team

- Technical experts
 - Engineers, scientists
- Communications experts
 - Public affairs specialist
- Management
- Congressional affairs
 - non-profits, NGOs, think tanks
- Outside, impartial expert
- Local contacts



Establish Objectives

- Providing information
- Gathering information
- Building trust and credibility
- Seeking involvement
- Influencing behavior/perceptions on risk
- Influence public policy



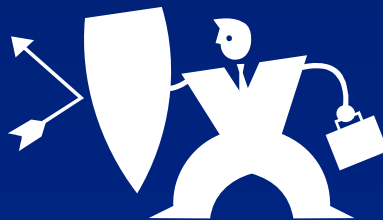
Plan

- **Do your homework !!**
 - Who are your “stakeholders?”
 - Do you have credibility or trust established?
 - Design the right message
 - Choose the right spokesperson
 - What tools will be used to communicate the message?



Prepare

- Practice delivering the message
- Ask the difficult questions and develop the appropriate answers
- Simulate the environment that you will encounter



Communicate and Involve

- Be available for, and open to, stakeholder input...this is KEY!!
- LISTEN
- Handle conflict constructively
- Respond quickly, especially in a crisis



Evaluate and Improve

- Invite feedback
- Discuss weaknesses
 - After action or lessons learned evaluations
- Learn from mistakes



Learning About Stakeholders

- Study the community affected
 - Demographics
 - Ethnic background
 - Media outlets
- Identify “opinion leaders”
 - Community leaders
 - Local politicians
 - Media



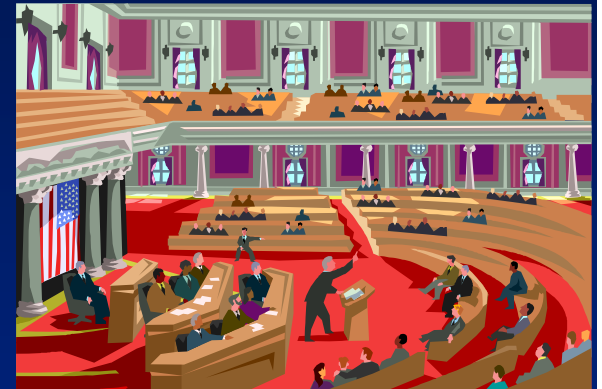
US Congress as a Stakeholder

- Congress makes laws
 - Affect public behavior
- Congress provides oversight
 - Executive Agencies answer to Congress
- Congress provides solutions
 - Funding for innovative ideas
 - Guidance for technical policy



The United States Congress

- Two Chambers of Congress
 - US Senate
 - 100 Senators
 - 6 year Term
 - US House of Representatives
 - 435 Representatives
 - 2 year Term



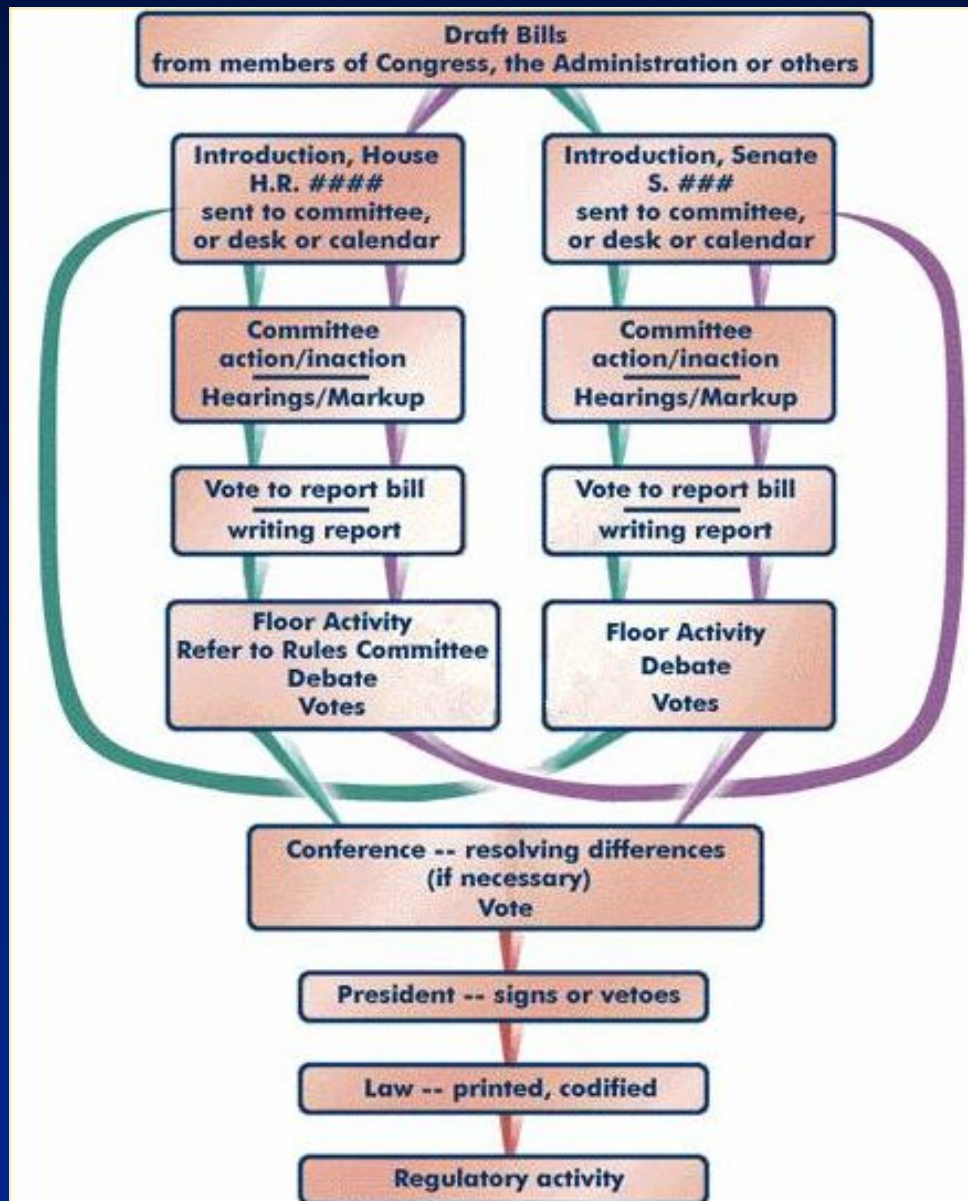
The United States Congress, Cont.

- The Current “SPLIT” in the 110th Congress
 - US Senate
 - 49 Democrats
 - 49 Republicans
 - 2 Independents (CT, VT)
 - US House of Representatives
 - 231 Democrats (4 Delegates)
 - 201 Republicans (1 Resident Commissioner)
 - 3 Vacant (2 Deceased Members, 1 Resigned)

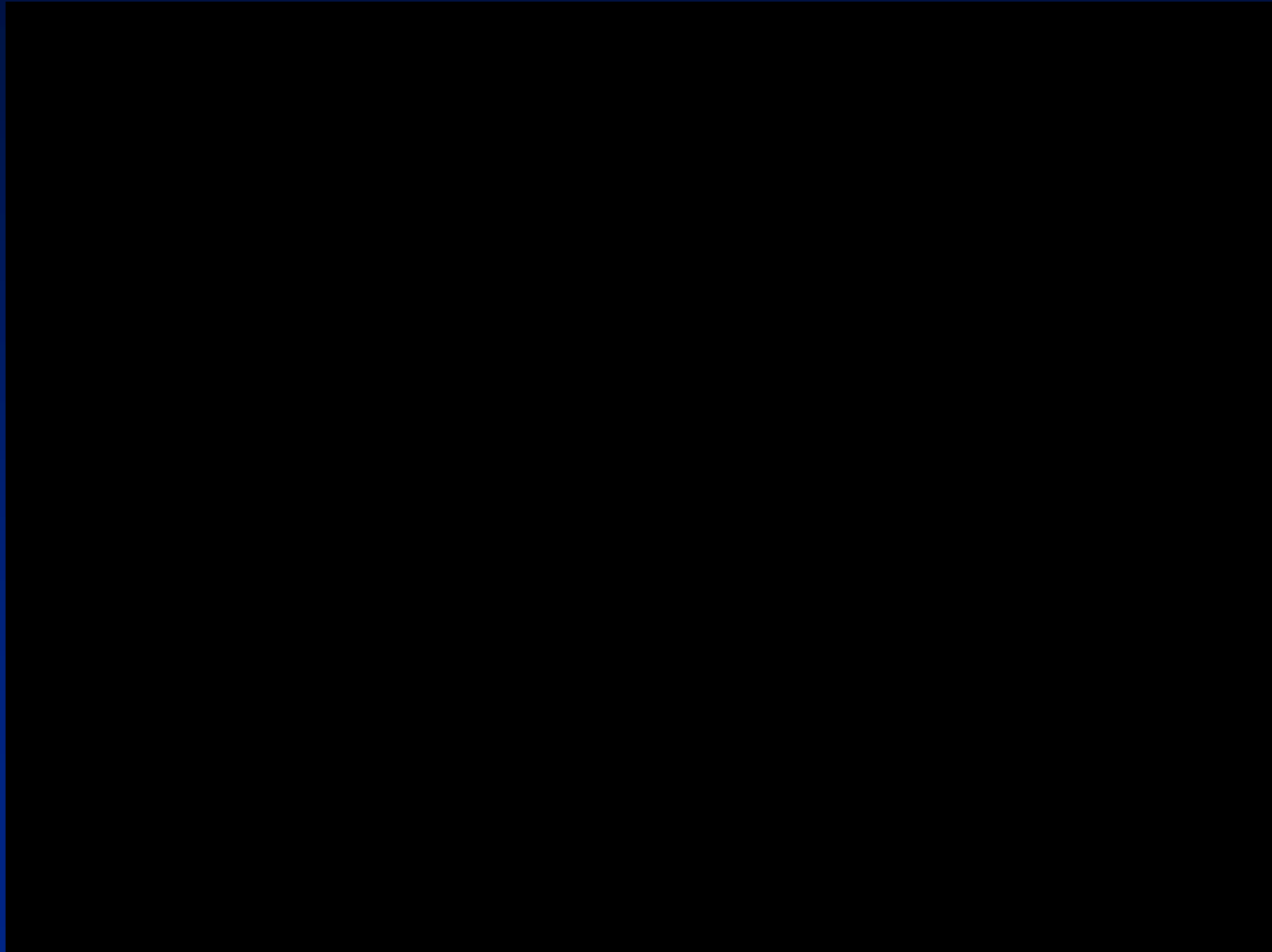




Passing a Bill in Congress



I'm Just a Bill...



The US Congress: Looking Ahead

- The 110th Congress
 - New Majority – First time since 2002 (Senate) and since 1994 (House)
 - More oversight
 - Focus Points:
 - Iraq War
 - Environment/Energy
 - Illegal Immigration
 - 2008





Why Involve Congress?

- Knowledge is power
 - The legislative process
 - How legislation affects your organization
 - How your organization can interface with Congress
- Organizational effectiveness
- Solving problems

Working with Stakeholders Successfully

- Building trust and credibility
- Crafting effective messages
- Effective two-way communication
- Affecting public policy: local and national



Building Trust and Credibility

- Trust: difficult to gain but easy to lose
 - Empathy
 - Honesty
 - Commitment
 - Expertise or competence
- Regaining trust
 - Take responsibility
 - Apologize, if appropriate
 - Commit to doing better



Crafting Effective Messages

- Determine your objective
 - Providing or gathering information?
 - Changing perceptions or gaining consensus?
- Key messages
 - No more than 3 or 4
 - Brief, accurate, to the point
 - Develop reasonable risk insights
- Fit the message to your audience
- Use appropriate language no “jargon!!”



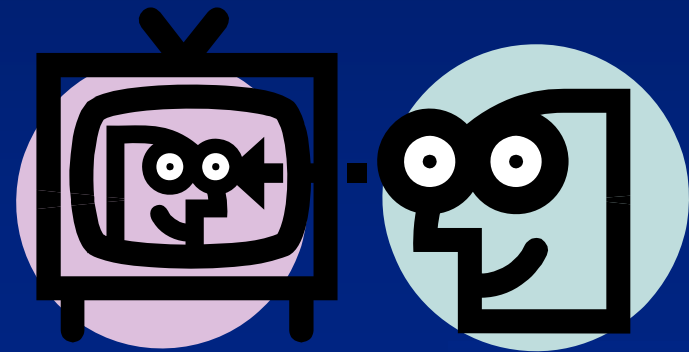
Effective Two-Way Communication

- The public is a legitimate partner
 - Highlight ways input can be received
 - Relate risk in terms they can understand
- Be creative
 - Never having to say “no”
- Well thought-out public meetings
- Informal interactions
- Carefully involving other parties, e.g. Gov’t officials or regulated entities



Affecting Public Policy: Local and National

- Your representatives are your link!
- A letter goes farther than you think
- Work through fellows or others familiar with your issues
- Be plugged in!
- Be patient and reasonable



Case Study: Technical Reports

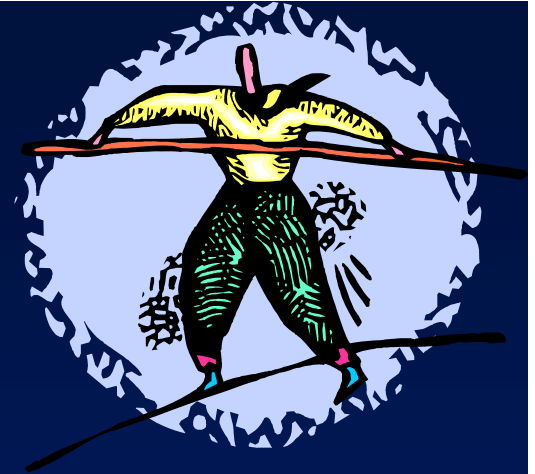
- NUREG series reports are technical reports issued by the NRC
- Seldom go out for public comment
- Focus on specific technical areas
- NUREG/CR 6886: “Spent Fuel Transportation Package Response to the Baltimore Tunnel Fire Scenario”



Case Study, cont.



- Draft report issued for public comment
 - Comments received from a variety of stakeholders
 - Comments were reviewed, categorized, and responded to
- Responses were included in revised report
- Risk Perspective was added
 - Examined rail accident frequency
 - Determined risk based on actual accidents



Case Study, cont.

- Our conclusion: “...*the risk to public health and safety posed by this type of transportation accident is close to nonexistent.*”
- Discussed findings in numerous venues
 - Technical conferences
 - State organizations
 - Advisory Committees
 - National Academy of Sciences

Case Study, cont.

- Interactions with media
 - Initiated media interviews
 - Issued press releases and Federal Register notices
- Interactions with other stakeholders
 - NTSB, Caltrans, California Highway Patrol
 - State of Nevada



Summing Up



- Risk communications: must be done
 - Form a Team
 - Establish your objectives
 - Plan and prepare
 - Communicate and involve
 - Evaluate and improve
- Identify and engage your stakeholders
 - Build trust, craft the message, communicate effectively

Group Exercise

- Developing effective communications
 - Use the examples provided
 - Form a Communication Plan
 - Who is on your team?
 - Establish your objectives
 - How are you going to communicate?
 - Work in groups of 2 or 3 (or more)



Your Questions

