Briefing Notes – James Chiles on Inviting Disaster (October 30, 2003)

Leaders at the Top

- The leader(s) at the top of an organization has a significant impact on safety through their attitudes and through resource allocation; stronger personalities have more impact for good or ill.

Common features between NASA Columbia Accident and Most Industrial Accidents

- Overly focused on a few (high hazard) risks
- Warning memos go unanswered; No one is responsible for following up on concerns
- Key people leave organization; Loss of expertise and experience; Not enough people; No one cares
- Key maintenance items deferred (note: this was a primary cause of Davis-Besse core head erosion)
- No open acknowledgement when risks are elevated
- Alarm flood; Overwhelming and ambiguous information that is not well sorted or understood
- Loss of institutional memory of past experiences, problems, and lessons learned
- Operators lock in on a hypothesis about what is happening; seek support for view & ignore dis-confirming evidence
- Operators over-ride automatic safety features
- End stage of accident: hyper-vigilance (constant monitoring) and desperate experimentation

Dispelling Notions On Last Minute Heroism and Nice People

- Last-minute heroism often occurs during accidents, but unlike in the movies, seldom works; for example, there are more deaths among rescuers than among victims
- Accidents are often caused by problems that occurred long before the actual event – for example, lack of training, and not identifying, studying, and addressing pre-cursor events
- Nice people cause most of the accidents. Typically accidents are caused by extreme focus, rather than laziness or recklessness. Problems are often due to overwork. In high stress situations, divorces and heart attacks increase.

Objectives and Questions

- Preventing small mistakes from becoming systemic breakdowns – stop & fill the cracks in the organization system
- What important information is being ignored?
- Who can I trust to tell me what I don't want to hear?
- What systems are expected to be working and are not working?
- How are open issues being resolved?

Adm. Rickover and NR serve as excellent example for safety

- Rickover insisted on hearing bad news – he developed a big, wide-open door for bad news.
- NR would "sweat the small stuff", "sweat everything" – not prioritize risks and focus on a few high hazard ones.
- Rickover used crises to get better. Shut-downs would be used to create a sense of urgency to resolve problems.
- Rickover rules: (1) rising standards of quality, (2) seasoned operators training newbies, (3) problems go to the top, (4) respect dangers, (5) constant, rigorous training, (6) integrated technical support, and (7) share and learn from past mistakes, but don't wallow in them.