The background of the slide is a stylized American flag. The top half is a dark blue field with white stars, and the bottom half is a white field with a red diagonal stripe in the bottom right corner. The stars are slightly blurred and have a soft glow.

**Risk Informed Approaches  
in Qualification  
for New Nuclear Plants:  
Considerations, Experience, Issues**

James F. Gleason, P.E

October 4, 2005

# WARNING

**R**

**RESTRICTED**

**UNDER 17 REQUIRES  
ACCOMPANING  
PARENT OR GUADIAN**

# Top 5 Changes in EQ for New Nuclear Power Plants

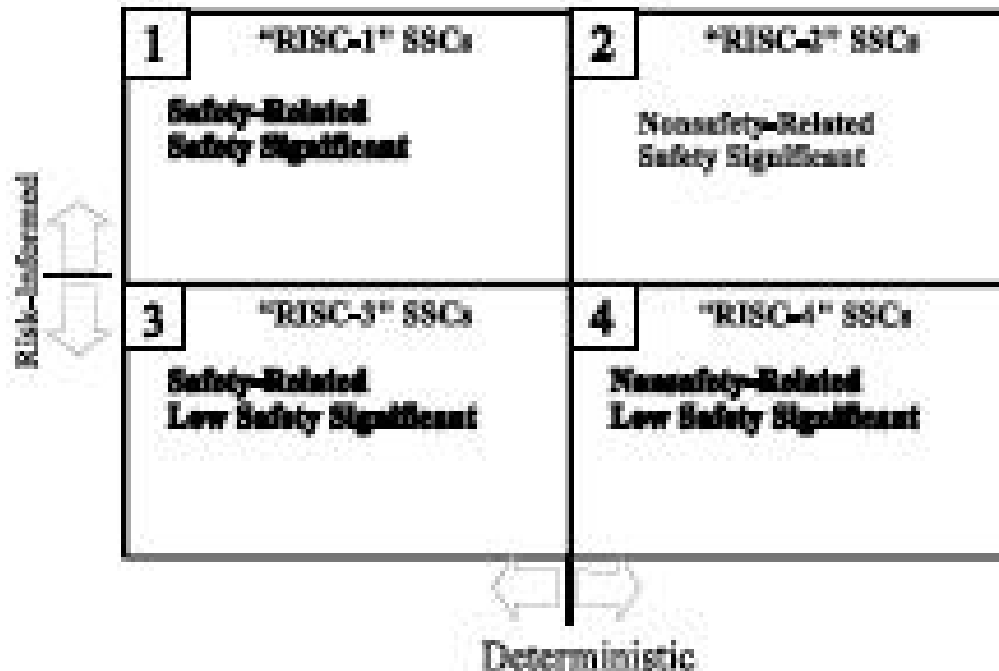
- RISK EXCITING



# Top 5 Changes in EQ for New Nuclear Power Plants

- FOUR CORNER OFFENSE

Figure 1. 10 CFR 50.69 RISC Categories



# Top 5 Changes in EQ for New Nuclear Power Plants

- NO MORE SOUND REASONS

*to the contrary*

# Top 5 Changes in EQ for New Nuclear Power Plants

- NEW ALPHABET SOUP

IDP

ISM

Degree of Relief

CCF

RISC-3

.net

CDF

LERF

EPR

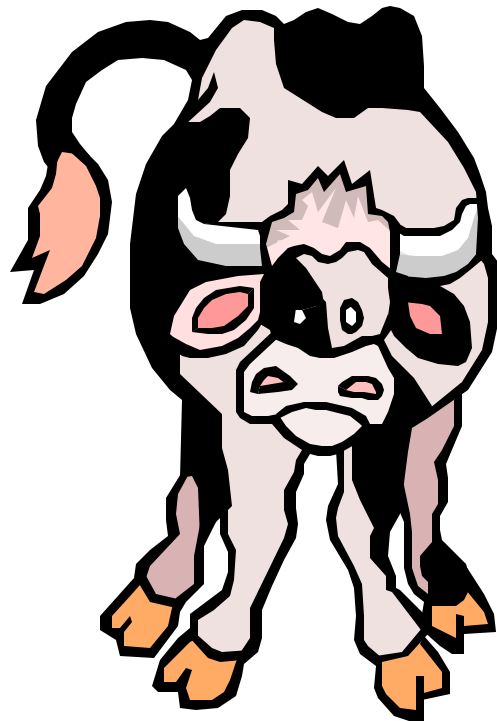
IT

ITS

Special Treatments

# Top 5 Changes in EQ for New Nuclear Power Plants

- WE'RE GOING IN THE FRONT THIS TIME



# Alphabets

- RISC
  - Risk Informed Safety Class
- IDP
  - Integrated Decision-Making Panel



# State-of-the-art PRA Methods

- It is believed
- Current state-of-the-art PRA methods
- Available to quantitatively address
- Full spectrum of potential events
- Full range of plant operating modes

# PRA Basis

- Core Damage Frequency (CDF)
- Large Early Release Frequency (LERF)
- Off Site Release

# IDP

- The §50.69 SSC categorization process
- Integrated decision-making process.
- This process blends
  - risk insights,
  - new technical information
  - operational feedback through
  - the involvement of a group of experienced licensee-designated professionals.

# Potential External / Internal Hazards

- Categorization of SSCs
- Use risk evaluations and insights
- All Hazards
  - Screening of Possible Hazards
  - Screening of Consequence
  - Screening of Hazard Frequency

# Failure Rate Basis

- Normal Conditions
- Off Normal Conditions
- DBA Conditions
- Seismic Conditions

## Degree of Relief

- It should be recognized that the degree of relief (i.e., SSCs subject to relaxation of special treatment requirements)
- NRC will accept under § 50.69 will be commensurate with the assurance provided by the evaluation.

# Safety

- SCWE
- SCEW

# Lessons Learned

- You have to Prove it
- You have to Move it
- Tin Whiskers
- WI-FI, EMI, Voltage Surges
- Make Class H Use as if Class B
- Condition Monitoring