



STATE-OF-THE-ART REACTOR CONSEQUENCE ANALYSES

Advisory Committee on Nuclear Waste and Materials Briefing
November 15, 2007



Agenda

- Overview
- Reporting Latent Cancer Fatalities



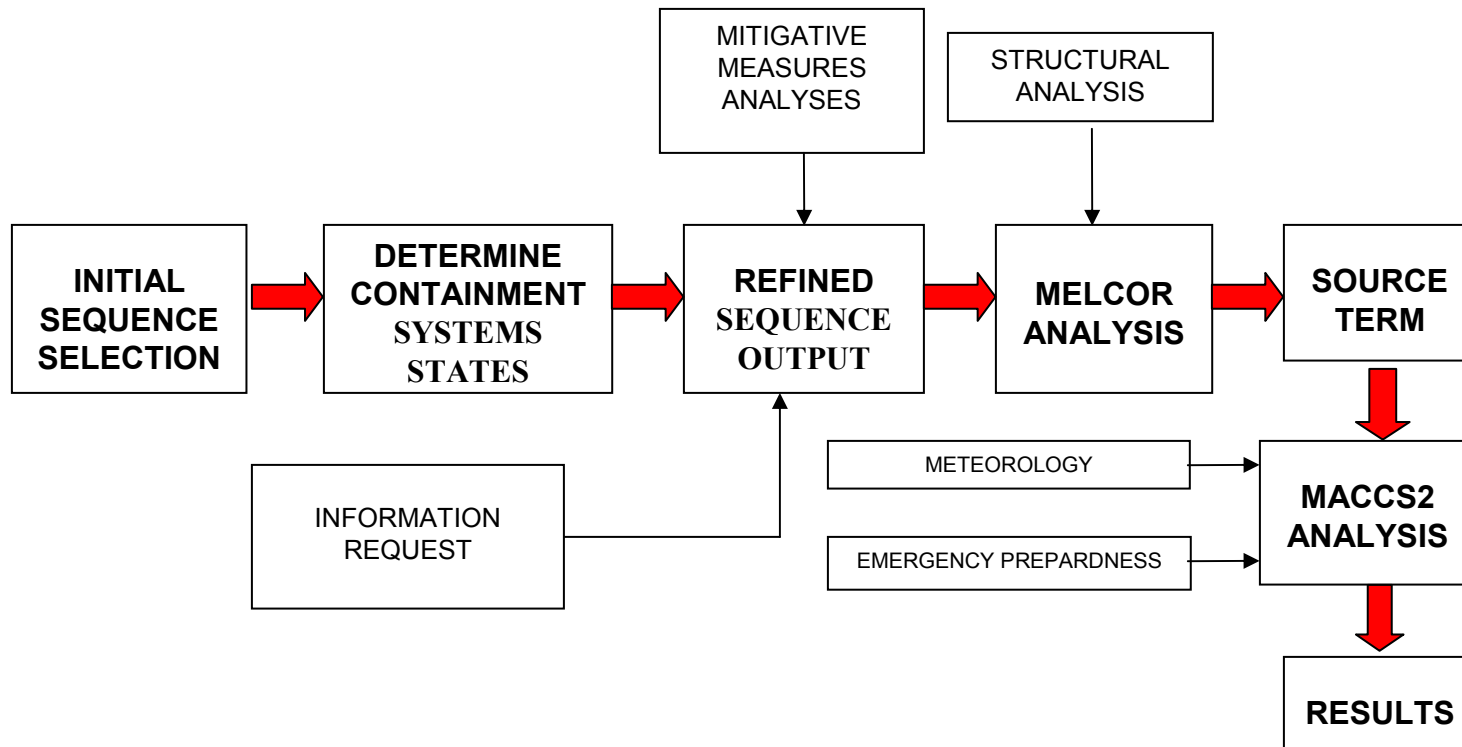
SOARCA Goal

Develop a state-of-the-art, more realistic evaluation of severe accident progression, radiological releases and offsite consequences for dominant accident sequences and replace analyses such as NUREG/CR-2239, “Technical Guidance for Siting Criteria Development,” issued November 1982.

- SR-COMSECY-06-0064
- SR-SECY-05-0233



SOARCA PROCESS





Project Plan

- Initial scope, not more than eight plants that represent the different reactor and containment design combinations operating in the United States
- Initial scope with staff recommendations to the Commission, TBD



SOARCA Approach

- Full power operation
- Plant-specific sequences including external events (CDF $\geq 10^{-6}$, CDF $\geq 10^{-7}$ for bypass events)
- Plant improvements: design, operations, emergency response
- Sensitivity analyses to assess effectiveness of safety measures
- State-of-the-art accident progression modeling based on 25 years of research to provide a best-estimate for accident progression, containment performance, time of release, fission product behavior
- More realistic offsite dispersion modeling
- Site-specific evaluation of public evacuation based on updated site-specific Emergency Plans



Reporting Latent Cancer Fatalities Background

- Commission emphasized the use of Risk Communication
- Steering Committee directed the SOARCA team to assess options
- SOARCA team developed options



Reporting Latent Cancer Fatalities

- Commission Paper
- Options
 - Range of thresholds (0 – 5 rem)
 - Linear no threshold (LNT)
 - Estimate point value from Health Physics Society
 - 5 rem in one year, 10 rem in a life time
- Commission paper in staff review