Module 6D: Flexibility

Lets talk about flexibility

- It is common for PRA practitioners to exercise flexibility in the order in which they pursue the quantification steps/factors
- It is the intent that SDP retain this flexibility
  - You will have to use your judgment

Flexibility (cont.)

- This is going to take practice and confidence on your part
- It is not necessary, you will get to the same answer either way, but you may save time/effort
- Exercising flexibility is most effective for a finding that is going to go green in the end anyway
  - Question is, “is there a quicker path to a screening result?”
- Biggest challenge is to ensure you don’t double count

One caution on flexibility

- If you alter the order of steps, you need to use the screening criteria that go with the step that moved up in the process
  - e.g., if you move Step 2.8 (refined CCDP) up to the top of Phase 2, you need to use the 1E-6 general screening criteria, not the tables in Step 2.1

Flexibility example 1

- Impacted fire area has very few fire ignition sources or sources present are not significant
  - It may be desirable to develop refined fire frequency early
  - Helps most if close to the screening level already, or when all sources are likely to screen out
    - May get you the “no credible fire scenario” answer
  - Move fire ignition source counting/screening to fist task in Phase 2
  - Can use refined fire frequency in subsequent steps

Flexibility example 2

- Existence of diverse safe shutdown paths not threatened by possible fire scenarios
  - May be desirable to pursue CCDP early in Phase 2 – e.g., put Step 2.8 in place of Step 2.1
  - Use the refined CCDP in subsequent steps in place of the nominal Step 2.1 CCDP value
  - You may avoid need to develop specific fire scenarios altogether

Flexibility Example 3:

- Redundant tray is in room, but in a non-degraded one-hour wrap
- Q: is it worth pursuing scenarios that attack the redundant tray in detail?
  - Scoping calculation can estimate importance
  - Look at manual fire suppression probability at one hour (we will give the minimum 1-hour credit to non-degraded barrier regardless)
  - Multiply by room fire frequency (either Phase 1 or Phase 2 refined value)
  - Loss of redundant train usually means can't credit SSD, so CCDP=1
  - Product of DF x PNS_{manual} x F_{room} bounds contribution of these scenarios
  - If this is low enough, (i.e., well below 1E-6) you may not want to analyze these scenarios in further detail.