(56)

Bowman, Gregory

EDO **From:** Bowman, Gregory -EDO
Sent: Monday, February 07, 2011 1:06 PM
To: Chang, Richard
Cc: Santiago, Patricia
Subject: RE: SOARCA Question

I'll let you know if Mike has any additional questions, but that helps. Thanks again!

RES **From:** Chang, Richard
Sent: Monday, February 07, 2011 12:40 PM
To: Bowman, Gregory
Cc: Santiago, Patricia
Subject: FW: SOARCA Question

Greg,

Please see below.

Thanks,
Richard

From: Bixler, Nathan E [mailto:nbixler@sandia.gov]
Sent: Monday, February 07, 2011 12:09 PM
To: Chang, Richard
Subject: RE: SOARCA Question

Richard,

Here are some definitions taken from the P-301 class that I teach annually:

Latent Cancer Risk - The risk increases with dose but the severity is independent of dose. Latent cancers are referred to as stochastic health effects. They have a period of latency before the health effect can be detected that is generally a number of years.

Early Fatality Risk - The risk and the severity of the symptoms both increase with dose. There is a distinct and significant threshold below which no symptoms occur for any member of the population. These health effects are referred to as non-stochastic and occur within days or weeks of the exposure.

Nate

RES **From:** Chang, Richard [mailto:Richard.Chang@nrc.gov]
Sent: Monday, February 07, 2011 9:12 AM
To: Bixler, Nathan E
Subject: FW: SOARCA Question
Importance: High

From: Bowman, Gregory
Sent: Monday, February 07, 2011 10:25 AM
To: Santiago, Patricia
Cc: Chang, Richard

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- **Subject:** SOARCA Question
  Importance: High

Mike Franovich stopped down to discuss SOARCA. I was able to cover pretty much all the questions he had, but he asked how we differentiate between early and late fatalities in the study. The SOARCA brochure has the following definition for an early fatality:

> **Early Fatality Risk** - Individual deaths that occur shortly (usually within a few weeks or months) after exposure to large doses of radiation.

Is that a good definition to pass on to Mike, or is there something more technical that's going to be used in the actual NUREG?