

PUBLIC SUBMISSION

As of: 4/26/18 10:34 AM
Received: April 26, 2018
Status: Pending Post
Tracking No. 1k2-92su-60d6
Comments Due: June 11, 2018
Submission Type: Web

Docket: NRC-2018-0034
10 CFR Part 20- Standards for Protection Against Radiation

Comment On: NRC-2018-0034-0001
Information Collection: Standards for Protection Against Radiation

Document: NRC-2018-0034-DRAFT-0003
Comment on FR Doc # 2018-07257

SUNSI Review Complete
Template = ADM-013
E-RIDS=ADM-03
ADD= David Cullison, Lisa Fishman, Brenda Miles, Faja Majeed

Submitter Information

Name: Brenda Laster
Address:
Ein Mor 73
Meitar, Israel, 85025
Email: blaster@bgu.ac.il

COMMENT # 2
PUBLICATION DATE:
4/10/2018
CITATION # 83 FR 15411

General Comment

It is a grievous situation when the information given to the NRC is incomplete. One cannot understand the biological implications of radiation exposure if one hasn't studied or acquired information about biology, biochemistry, cell signaling, inflammation and immunity. The use of the unit 'dose', together with the uncertainty of how DNA mutations are carcinogenic has muddied the field and kept radiation scientists from exploring the physical evidence of how the body reacts to radiation exposure. For example, although radiation exposure itself produces very little hydrogen peroxide (H₂O₂), it does produce superoxide anions. When these interact with the 70% body water content, they are rapidly and enzymatically dismutated to the highly diffusible H₂O₂ molecule. As an oxidizing agent, H₂O₂ causes fluctuations in the body's antioxidant and cell signaling systems when it interacts with thiol groups on cysteine amino acids. While this phenomenon relates to 'dose', the temporary inactivation of antioxidants and cell signaling phosphatase enzymes that regulate the body's response to radiation exposure, it is also influenced by the dose rate. Additionally, the by-products of cysteine oxidation, such as sulfenic acid, are critical signals for immune activation of nave T cells. Until such time as the NRC opens the door for obtaining complete information about the biological impact of radiation exposure and the role of H₂O₂ in inflammation and immunity, it will not be able to predict the outcome of radiation exposure or how the public can be protected. The threshold 'dose' of radiation is more likely related to the local level of H₂O₂ produced than it is to the mutations in DNA from photon interactions.