3-E Aerosol Inhalation Lessons and Applications based on the ICRP 66 Lung Deposition Model. ***M. Hoover; CDC-National Institute for Occupational Safety and Health***

This PEP course illustrates practical aerosol science lessons and applications of the International Commission on Radiological Protection Publication 66 Human Respiratory Tract Model (HRTM) (ICRP 1994). Models including the LUDEP Personal Computer Program for Calculating Internal Doses using the ICRP Publication 66 Respiratory Tract Model will be used to illustrate the importance of knowing aerosol properties such as particle size and human subject properties such as breathing rate. Approaches for obtaining needed aerosols properties will be illustrated. Industrial hygiene examples will include respiratory tract deposition of beryllium and anthrax. The new HTRM is a general update of the Lung Model in ICRP Publication 30 (ICRP 1979) for adult workers, and is significantly broader in scope. It applies explicitly to workers and all members of the public, for (1) inhalation of particles, gases and vapors; (2) evaluation of dose (or material retention) in sensitive regions of the respiratory tract, for a given intake or exposure, and; (3) interpretation of bioassay data. The HTRM provides a physiologically realistic framework for modeling respiratory tract retention and excretion characteristics, and the resulting respiratory tract and systemic organ doses. It enables knowledge of the aerosol characteristics, dissolution and absorption behavior of specific materials to be used in a realistic manner, and calculates meaningful doses in relation to the morphological, physiological, and radiobiological characteristics of the various tissues of the respiratory tract.

3-F How to Deal with the Terror of Radiation and Nuclear Terrorism. ***R. Johnson; Radiation Safety Academy, Inc.***

Part I - Understanding the Fear Factor

First responders and specialists in radiation safety may find that the greatest challenge in response to nuclear terrorism is dealing with people's fears rather than technical issues. We may be well trained to deal with the technical aspects of a nuclear incident, but will we be prepared to deal with fears, terror, and risks that may confront our own families. Over 60 years of mostly negative press about radiation have created an almost universal mindset that radiation is bad and to be avoided at all costs. This mindset will result in most people (the public and first responders alike) to be instinctively afraid of radiation. Thus, radiation is an ideal choice for terrorists to use for creating terror. People will respond according to their mind set, their perceptions, and the images in their minds of the terrible consequences of radiation. Phobias may abound from fearful expectations of extreme consequences related to the question, "What if - - - - -?" The Myers Briggs Type Indicator is a useful source of insight into how our inferior function or "shadow" is the basis for dark premonitions and fears that arise in a crisis. Fears and images can also be identified by the question, "What's so bad about that?" The fearful images often have little to do with reality. Will Rogers said, "I've experienced a great many terrible things in my life, a few of which have actually happened."

Part II - Practical Tools for Effective Risk Communication

People are generally most afraid of what they know the least about. Recognizing that fear may be a greater driving force in people's reactions to a crisis than the technical circumstances will help us become better responders. Fearful people want their fears heard and respected. They

FINAL PROGRAM

49th Annual Meeting of the Health Physics Society

(American Conference of Radiological Safety)

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