**ASPR TRACIE Technical Assistance Request**

**Requestor:**
**Requestor Phone:**
**Requestor Email:**
**Request Receipt Date (by ASPR TRACIE):** 10 February 2016
**Response Date:** 19 February 2016
**Type of TA Request:** Standard

**Request:**

reviewed ASPR TRACIE’s Radiological and Nuclear Topic Collection and noted that the resources provided were mostly focused on very significant or catastrophic releases. He is interested in low level releases/ exposure, which is what he encounters most often and what their local health officials have difficulty comprehending and overlook in their planning and training. He asked ASPR TRACIE if we had any resources specifically related to low level releases/ exposure.

**Response:**

The ASPR TRACIE team conducted a search and reached out to several of our ASPR TRACIE SME Cadre members with expertise in the field to gather the resources below. The first section below includes several evaluations and studies. The second section provides guidance documents and additional general information related to low level releases/ exposure. Finally, the third section includes a few websites that may be helpful.

I. Evaluation and Studies


The author of this article discusses how long-term exposure to low-dose radiation can increase the risk of leukemia.


This article describes a tool that can be used to assess security risk for any site that provides storage of low-level radioactive waste. It was designed to be used by radiation safety professionals who are not security trained.
This article provides a summary of a study conducted to correlate the risks of cancer associated with exposure to low level radiation. The study involved 308,297 nuclear industry workers from France, the United Kingdom, and the United States. Results indicated evidence of a linear increase in the excess relative rate of cancer mortality with increasing exposure to ionising radiation at the low dose rates typically encountered in the nuclear industries.


The author of this article explains how much work and substantial monetary expenditures have been devoted to reducing radiation exposure from radiography and other medical procedures. However, he notes the sentiment has shifted to regard the risk estimates in the low dose region that are based on the linear no threshold theory as being grossly exaggerated or completely negligible. The purpose of this article is to review the basis for the linear no-threshold theory and to present some of the emerging information that has caused this shift in sentiment.


An interim storage facility was developed for low-level radioactive waste and can serve as a model for a collective surge capacity storage site during a natural disaster or emergency.


The author of this article discusses the BEIR (Biological Effects of Ionizing Radiation) reports, which are a series of publications by the National Academy of Sciences. BEIR VII reconfirmed that the linear no threshold model is the most practical model to estimate radiation risks, especially for radiation protection purposes. The purpose of this article is to highlight the contents of this important publication with particular emphasis on what is emerging.


The author of this article describes the health effects of low-level ionizing radiation, including cancer, heritable mutations, and other significant health effects.
II. Guidance Documents and Additional General Resources


This primer is intended to provide a review of the scientific background and potential risk estimates of adverse effects of low level radiation exposure. Although it is outdated, this resource may still be helpful.


This resources provides general information on radiation, including where radiation comes from, who sets radiation standards, and sources of data used to set radiation standards.


This link lists sources for low level radioactive waste by type, volume, curies, half-life, decay time to be considered hazardous, and states’ authorities to protect the public.


This document is a request for information from the Occupational Safety and Health Administration asking for information on issues related to the increasing use of ionizing radiation in the workplace and potential worker exposure to it.


This brief document provides background on radiation and information on the biological effects it can have on individuals.


This document defines both high-level and low-level radioactive waste. It includes origins of low-level waste (0.1% nationally from medical facilities), on-site storage of low-level waste at medical sites, methods of monitoring decay to safe levels, and state regulations to support safe disposal.

An introductory description is given about types of radioactive waste and defines the role of the U.S. Department of Energy and the Nuclear Regulatory Commission for waste management, storage and disposal. It refers to agreements with 32 states.


This resource provides information on radiation such as, unstable atoms, atomic decay, half-life types, ionizing radiation, measuring ionizing radiation, and the health risks from ionizing radiation.


This resource provides an overview of nuclear radiation, including the types of radiation, units of radiation and radioactivity, effects of ionizing radiation, limiting exposure, standards and regulation of radiation exposure, nuclear fuel cycle radiation exposures, and accidental radiation exposure (nuclear and other).

III. Websites

