DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC

6 December 2013

MEMORANDUM FOR DEPARTMENT OF VETERANS AFFAIRS, JACKSON, MS
ATTN: Ms. Gail Berry

FROM: Air Force Medical Support Agency/SG3PB

SUBJECT: Radiation Exposure Estimates for USAF Nuclear Weapon Accident Responders – Palomares, Spain

The Air Force Office of the Surgeon General recently evaluated internal processes for completing ionizing radiation dose assessments for veterans involved in the 1966 USAF incident response at Palomares, Spain. A review was initiated to ensure a conservative and consistent approach was applied to all dose reconstructions for this incident. This office continues to strive toward timely, scientifically-based responses for all health-related veteran claims.

Our review found that approximately 1,600 personnel, including Army, Navy, Air Force, and other US federal employees, were involved at various stages of the response with 1,586 individuals submitting at least one sample for analysis. We have records for 19 USAF veterans who submitted claims since 2001 in association with the Palomares response, with three individual appeals for re-assessment for a total of 22 claims. For several of these claims, dose estimates and subsequent responses involved assistance from the Air Force Safety Center.

A review of these 22 cases indicates inconsistencies in dose assignment over the past 12 years. In some cases, the assigned dose was based on the maximum expected dose as derived from average ambient air monitoring results (311 mrem). A dose value of this magnitude likely applies to the average response participant, but appears to underestimate doses to some individuals. In more recent claims, a detailed dose reconstruction was performed using plutonium (Pu) intake values based on initial and follow-up urine samples. The committed dose to specific organs and/or tissues was then assessed using various modeling protocols based on publications of the International Commission on Radiological Protection (ICRP). Previous assessments from this office varied due to data availability and interpretation, updates to ICRP models, and differences in professional opinion on the appropriate use of multiple data sets (ambient air monitoring vs. urine excretion biomonitoring).

Following a comprehensive review of all data generated from 1966, this office has decided to formally standardize our response methodology for radiation dose inquiries involving Palomares participants. In doing so, we will use a common approach to provide a conservative, i.e. worst case, dose estimate for the veteran to afford him or her the benefit of the doubt. This office will use the following methodology to respond to VA/veteran dose inquiries for Palomares responders:

a. Establish the veteran's presence at the incident site.

b. Perform a review of duties based on historical records and statements provided by the veteran.

c. Review available bioassay data for the veteran and assign an intake value.

(1) If the veteran is a member of the cohort with the highest exposure potential (designated as the "High 26"), use their established intake estimates. The established intakes range from 34,000 to 570,000 picocuries (pCi).

(2) For the remaining responders, define intake as "does not exceed the intake calculated for the least exposed member of the High 26 group." The intake range for this group will be conservatively set at 1,100 to 34,000 pCi.

d. Estimate committed doses for the organ(s) of concern. The primary organs of concern from plutonium exposure are the lung, liver, and bone surface, based on International Commission on Radiological Protection (ICRP) Publication 30 (used by the Nuclear Regulatory Commission and Environmental Protection Agency) and ICRP Publication 68 (used by the Department of Energy and the Defense Threat Reduction Agency). We will provide both ICRP-model results in responses to the VA.

e. If the member does not have a valid urine sample, reconstruct the dose based on similar exposures using their specific duties, if possible. If that is not possible, consider having the member provide a urine sample for analysis using the latest analytical procedures that claim to eliminate or greatly reduce confounding factors such as radioactivity from natural or background sources.

This office, with assistance from the Air Force Safety Center, will reevaluate the 19 claims previously addressed and apply the above methodology to rectify inconsistencies in dose determination. We may request your assistance in identifying claims adjudicated prior to the year 2000 and for which we may not have records on hand.

The AF/SG point of contact is Major Dan Shaw, 703-681-7855 or e-mail at daniel.shaw@pentagon.af.mil.

RICHARD A. ASHWORTH, Col, USAF, BSC
Chief, Bioenvironmental Engineering Branch
Office of the Air Force Surgeon General

cc:
AFSEC/SEWN (Dr. Steven Rademacher)