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## Response to items 8,9, and 11

in March 8, 2013 document titled

“NIOSH/ORAU Team actions from March 7, 2013 Fernald WG meeting”

Robert Morris, Karen Kent, and Elizabeth Brackett

March 25, 2013

Related to Th in vivo 1978-1988:

8. Since the in vivo data includes highly exposed individuals like chemical operators as well as lower exposed individuals like Security and laundry workers, describe how we will ensure that applying a coworker approach to highly exposed individuals will bound their intakes.

**SC&A response:** Issue is the implementation of a one-size fits all bounding model for all Fernald workers, given the inability to identify who worked with thorium and in which plant on any given campaign vs. current model

Application of the FMPC coworker model will be consistent with that of other coworker models. The coworker model will be used to reconstruct doses to workers who may have been exposed to thorium when no monitoring data exist, or when inadequate monitoring data are available (e.g., a result early in the employment period with no subsequent monitoring). The judgment concerning who may have been exposed is made by the dose reconstructor based on the period of employment, job description, work location, information supplied by the claimant, and other available information in the claimant file. The 50<sup>th</sup> percentile value, with the associated GSD, of the coworker model will be applied in most cases. In the unusual cases in which a worker may have been highly exposed, for example a chemical operator or chemical group laborer, the 95<sup>th</sup> percentile value of the coworker distribution would be applied. For example, the 95<sup>th</sup> percentile coworker intakes would be applied for a chemical operator with no record of *in vivo* monitoring for thorium-related isotopes.

Reference documents that explain which workers were subject to *in vivo* monitoring exist; for example, SRDB Reference ID# 2895, which was published in 1975 and Reference ID# 85067 which was published

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in 1987. According to SRDB Reference ID# 85067, in 1987 the FMPC policy was to base the frequency of *in vivo* measurements on job classification and potential for internal exposure. Some workers were to be monitored annually due to high exposure potential. This includes Chemical Operators and Chemical Group Laborers. Workers with lower exposure potential, for example Mechanical Department Laborer or Machine Tool Operators, were monitored biennially. Less exposed workers were to be monitored on a once-every-four-years basis. Workers whose job classifications were not listed were not included in the routine *in vivo* monitoring program. Laundry workers were included in the monitored group every fourth year. Security personnel were not listed, and so they were not included in the routine *in vivo* monitoring program.

Related to Th *in vivo* 1978-1988:

9. Specify who the coworker model will be applied to.  
**SC&A response:** See response to #8

See response to Item 8.

Related to Th DWE intake method:

11. Specify who the Th DWE exposures will be applied to.  
**SC&A response:** See response to #8

See response to Item 8. Also note that the thorium DWE intake method is likely to be the only available source of thorium intake data during the period when it was used. As a result, this method will be applied to workers who have the exposure potential based on the criteria listed in the response to Item 8.