Issues Matrix for Chapman Valve SEC Petition Evaluation Report[12]
(February 14, 2007)

Issue No.	Petitioner's Concern	NIOSH Response in Evaluation Report	SC&A Findings	NIOSH Response to SC&A Findings	Board Action
1 SC&A Report Section 3.1	The petitioners claim that the bioassay data are not adequate to support the reconstruction of doses with sufficient accuracy. They claim that the data (1) are not representative of the exposed worker population, (2) were collected without any understanding of the individuals' exposure histories, and (3) do not assess exposures from a number of industrial processes, such as the cracking furnace, chip	NIOSH disagrees with these claims related to the available bioassay data and contends that the bioassay data are representative of the potential exposures from uranium operations performed by Chapman Valve, because bioassay samples were collected from employees accessing the restricted Chapman AEC areas in job categories that are considered representative of the workers involved in the AEC project.	SC&A concurs with the petitioner that the bioassay data from Chapman Valve alone are not sufficient to support internal dose reconstruction with sufficient accuracy for the very reasons cited by the petitioners. However, there is a vast amount of air sampling data and bioassay data collected at other uranium metal handling and processing facilities at the time that can be used to supplement and complement the bioassay data available from Chapman Valve for estimating routine exposures to uranium.		

[1] *Disclaimer*

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	incinerator, or possible rolling operations				
2 SC&A Report Section 3.2	The petitioners express concern that NIOSH concedes that they have no documentation about why bioassay samples were collected, and that most of the data were below the LOD. It appears that the petitioners are concerned that the bioassay program was poorly designed and did not detect intakes for the more highly exposed individuals.	NIOSH explains that it was standard practice at that time for urine samples to be collected in order to assess exposure conditions at the site. In addition, NIOSH states that, although the exact selection criteria regarding who should be included in the bioassay program are not stipulated in any of the records, it was standard practice for AEC to want to know what were the worst-case exposures so that they could determine where additional controls might be needed.	SC&A believes that petitioner concerns regarding why bioassay samples were collected and the LLD do not preclude NIOSH from using the bioassay data and data from other facilities to supplement Chapman data to develop and implement an exposure matrix that can be used to reconstruct chronic exposures to workers with sufficient accuracy.		
3 SC&A Report Section 3.3	Petitioners claim that there is insufficient bioassay data with which to estimate a plausible upper-bound dose, that process information is too limited to characterize exposures, and there is only one day of air monitoring data. As such, it is not feasible to estimate dose with sufficient accuracy.	NIOSH disagrees with these claims because the bioassay program was consistent with such programs at that time, and that enough is known about Chapman Valve production to estimate doses with sufficient accuracy. NIOSH also states that air-monitoring data were not used to reconstruct doses, and, as a result, the fact that the amount of air monitoring data is extremely limited is not a significant issue. Finally, NIOSH summarizes the basic	SC&A believes that the bioassay data and the limited information regarding uranium milling operations at Chapman Valve, together with a great deal of data collected from many uranium facilities at that time, allows NIOSH to develop an exposure matrix for internal dose that is scientifically plausible and claimant favorable for chronic exposures		

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		approach used to develop the exposure matrix and explains that those assumptions are compatible with experience at Y-12 at that time.			
4 SC&A Report Section 3.4	Petitioners claim that, since the actual date of the fire is not known, the actual uranium intakes associated with the May/June 1948, fire cannot be estimated.	NIOSH's response to this concern re-states quotes taken from historical records that a fire occurred in early June, and that the exposure matrix takes the exposures associated with the fire into consideration using the urine bioassay data collected on June 11, 1948, from 7 workers that were involved in putting out the fire and cleanup following the fire.	SC&A concurs with the petitioner's concerns. SC&A believes that explicit consideration should be given to the possibility (i) that there were more than 1 fire and (ii) that the date of the June fire could have been before June 10, 1948. NIOSH has not developed an approach to address these two issues.		
5 SC&A Report Section 3.5	The petitioners express concern that enriched uranium may have been machined at Chapman Valve. This concern is based on an airborne dust measurement taken in the 1990s as part of the site remediation program.	NIOSH's response to this concern is to disregard the cited measurement for a number of reasons. First, the historical records indicate that Chapman Valve was commissioned by the AEC to machine uranium rods for the Brookhaven reactor. NIOSH also stated that the 1997 report, where the slightly enriched uranium was observed, attributed the value to background levels. In addition, NIOSH cites evidence that enriched uranium was only handled by	SC&A generally concurs with NIOSH's position that natural uranium was processed at Chapman during the period under consideration (1948-1949). However, for the reasons discussed in Section 2.1 of the SC&A review report, some additional investigation is needed of the enriched uranium issue for an earlier period not covered by the NIOSH Evaluation Report.		

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		government facilities at that time. Finally, NIOSH concludes that whether or not enriched uranium may have been processed at Chapman Valve has no bearing on the feasibility of dose reconstruction, and does not pose an SEC issue.			
6 SC&A Report Section 3.6	The petitioners expressed concern that the site profile does not take into consideration other industrial processes that may have taken place at Chapman Valve, such as the use of a cracking furnace, chip incinerator, or possible rolling operations.	NIOSH's response to these concerns is that the site profile does take into consideration the fact that there was a chip burner at the facility and cites data collected at the burner's exhaust location. In addition, NIOSH states that the bioassay data upon which the exposure matrix is based captures any exposures that may have been associated with a chip burner. With respect to possible rolling operations, NIOSH states that there is no documented evidence that rolling operations took place at Chapman Valve. NIOSH further states that, even if rolling operations took place, the bioassay data would have captured such exposures.	SC&A believes that the petitioners' concerns regarding exposures associated with a chip burner and possible rolling operations are valid, and that NIOSH's response to those concerns is not convincing. SC&A believes that there could have been short-term elevated exposures associated with chip burning or possible rolling operations that the limited bioassay program at Chapman Valve could have missed.		
7 SC&A Report	Petitioners express concern that there is only one day of uranium air samples, and	NIOSH agrees with petitioners' statements and concerns, but explains that the	SC&A concurs with NIOSH's position on this matter so long as NIOSH does not use the air sampling		

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Section 3.7	that one set of samples shows that there were elevated levels of uranium throughout the facility.	limited air sampling data were not used for dose reconstruction.	data in question in its dose reconstructions for Chapman Valve..		
8 SC&A Section 3.8	Petitioners express concern that there may have been numerous fires at the facility that NIOSH has not taken into consideration.	NIOSH explains that the records only indicate one significant fire in early June that is taken into consideration in the exposure matrix. They also explain that the assumptions used in the exposure matrix for chronic exposure account for the possibility that other fires may have occurred, because, if the bioassay results were in fact associated with incidents, the approach used by NIOSH overestimates the exposures.	SC&A believes that the method adopted in the exposure matrix to model the acute exposures associated with the June fire is not claimant favorable. However we believe that this is a tractable problem since an earliest feasible date can be reasonably ascertained. As regards other fires, SC&A interviews did not reveal information about other fires, but none of the workers interviewed worked in the relevant department full time. The issue of other fires merits further investigation.		