Y-12 Site Profile Review:
Matrix of priority Issues potentially relevant to SEC petition review
Prepared by ABRWH Workgroup
January 8, 2006

Issue Number	Description of Issue	Outstanding Action Items
INTERNAL DOSE		
1a	**Validity of Bioassay Data**	
1a (Items 1 and 2)	Was the CER bioassay data validated independently by NIOSH / ORAU for the compensation program?	1. NIOSH will attempt to resolve the question of access to the Y-12 database. If possible NIOSH will assure access on the "O" drive for the entire Y-12 database (rather than just previously provided excerpts of the database). 2. NIOSH will review HP monthly/quarterly reports at Y-12 and compare values for internal and external monitoring to the electronic database as a means of checking the reliability of the database data. 3. NIOSH/ORAU will determine whether a comparison between hard copy (e.g., laboratory log books, data cards, etc.) and electronic records is possible. If records are available, NIOSH / ORAU should outline a method for using the hard copy records to check the 'reliability' of the data for purposes of individual dose reconstruction. Finally, NIOSH /ORAU should present the results of the completed 'reliability check'. 4. NIOSH / ORAU will provide more information regarding the method by which raw count data (alpha or μg) was converted to dpm (as provided in the uranium urinalysis database). Of particular interest are the laboratory and counting methods and conversion equations used during the 1950-1957 time period. 5. NIOSH will attempt to locate and make available documentation of the personnel monitoring quality control procedures and reports with particular focus on the time periods of interest. 6. NIOSH will attempt to locate and make available documentation regarding Y-12s petition to DOE to accept the uranium urinalysis electronic records as the primary source of data.
1a-3	Is CER data representative of all workers monitored or a subset of	No action items remaining which would likely be applicable to current SEC review

	workers (e.g., for epi study)?	
1a-4	Does pre-1961 data incorporate intakes of insoluble uranium	NIOSH will review the following documents and other pertinent documents related to this issue in more detail and determine the potential missed dose from ineffective monitoring techniques. Comments were made that particle size would likely be an important factor in how significant this issue would be and that this concern has not been borne out from experience at one other uranium plant, Fernald. 1) Relationship of In Vivo and Urinalysis Data Collected from Persons Working with Uranium, L. Max Scott, October 22, 1963, Site Research Database #693. 2) Characterization of Y-12 Uranium Process Materials Correlated with In-vivo Experience, L.M. Steckel and C.M. West, July 28, 1966, Site Research Database #11609.
1a-5	Why were in-vivo results not considered in development of co-worker models?	No action items remaining which would likely be applicable to current SEC review
1a-6	What percentage of claimants have individual urine and in-vivo results which would be used for their individual dose reconstruction (what percentage would require use of the co-worker model for dose reconstruction)?	No action items remaining which would likely be applicable to current SEC review
1b	**Other Radionuclides**	
1b (items 1 and 2)	Site profile is deficient on information regarding exposures to other radionuclides (other than uranium). Site profile does not include information on how to relate other radionuclides contribution to worker doses	**1.** NIOSH/ORAU to provide thorium air sampling database (post 1960 data) on the O-Drive if available. **2.** NIOSH / ORAU to follow-up on the additional data currently under classification review (CD with approximately 6000 pages) **3.** NIOSH/ORAU will assure they have characterized all operations involving other radionuclides including those outside the Calutron and Cyclotron and recycled uranium processing. 4. NIOSH/ORAU will determine if the X-10 department 4000 data is robust enough to be used as co-worker data and will present the data and applicable model to the Board and SCA. They will also determine if co-worker dose assignments bound those individuals working with other radionuclides during production activities. 5. SCA to review the ratios used for recycled uranium as presented in the site profile internal dose section, Table 5-2.

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1c	**Choice of 50th percentile intake rates**	
1c-1	It is unclear how NIOSH will apply the intakes derived from the co-worker database (entire distribution, 50th percentile, 95th percentile)	1. NIOSH/ORAU is to provide a list of departments, their associated dates, and a description for Y-12 departments. 2. The many job titles have been condensed down to about 40 functional groups. NIOSH will send a copy (spreadsheet) to SCA and Board. 3. NIOSH will attempt to resolve the question of whether the most exposed individuals were sampled and monitored or whether a random sampling of individuals from the 'most exposed departments' were sampled or monitored. 4. NIOSH/ORAU should indicate what decisions have been made regarding the use of the 95th percentile.
1d/1e	**Type F uranium exposures / 48 hour delay in sampling**	
1d/1e-1	It is unclear what solubility assumptions NIOSH will be making for dose reconstructions and whether different assumptions will be used in different circumstances	NIOSH to provide explanation regarding solubility assumptions specifically addressing the concern about exposures to Type F uranium.
1d/1e-2	Coworker models do not account for 48 hour delay in sampling which, if it was the consistent followed policy, would significantly effect the estimated coworker intakes	NIOSH will prepare a written analysis of the effect of the 48-hour delay in sampling on the estimated intakes and, if necessary, will determine appropriate correction factors to use in estimating intakes.
1f	**Job descriptions of unmonitored workers lacking**	
1f-1	Job descriptions of unmonitored workers lacking and will be	See actions in 1b (items 1 and 2) and 1c-1

	necessary to assess the utility of the coworker model	
EXTERNAL		
1a	**Validity of the Data and Explanation of the Co-worker Models**	
1a (Items 1 and 2)	Was the CER bioassay data validated independently by NIOSH / ORAU for the compensation program?	1. NIOSH will make available an expanded CER external dose database for all years up to and including 1965 to supplement the 1950-1957 data that has been provided. 2. NIOSH/ORAU will attempt to add job titles to the external dose records and to expand the years of coverage (through 1965) in the excerpted database to allow for review of the co-worker models and assure that SCA and the Board have access to the modified database(s). 3. NIOSH will attempt to provide SCA with the complete dose records for the 147 monitored workers that were used in the regression analysis for unmonitored workers from 1948-1960. This is to be a separate file from the rest of the workers. 4. NIOSH/ORAU will determine whether a comparison between hard copy (e.g., data cards, etc.) and electronic records is possible. If records are available, NIOSH / ORAU should outline a method for using the hard copy records to check the 'reliability' of the data for purposes of individual dose reconstruction. Finally, NIOSH /ORAU should present the results of the 'reliability check'. 5. NIOSH will attempt to locate and make available documentation of the personnel monitoring quality control procedures and reports with particular focus on the time periods of interest.
1a-3	Is CER data representative of all workers monitored or a subset of workers (e.g, for epi study) ?	No action items remaining which would likely be applicable to current SEC review
1a-4	90% 'match' believed to be insufficient for purposes of dose reconstruction	NIOSH/ORAU is still evaluating this issue

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1a-5	What percentage of claimants have individual urine and in-vivo results which would be used for their individual dose reconstruction (what percentage would require use of the co-worker model for dose reconstruction)?	No action items remaining which would likely be applicable to current SEC review
1a-6	Question raised as to whether the coworker models presented are sufficient for use in estimating pre 1961 external exposures	NIOSH will provide analysis files (excel spreadsheets) used in the co-worker models to assign dose.
2a	**Badging of Maximally Exposed Individuals**	
2a-1	Question raised whether the monitored individuals were likely the highest exposed	1. NIOSH/ORAU should indicate what decisions they come to regarding the use of the 95th percentile. 2. NIOSH/ORAU will further investigate the reason why the criticality accident victims were not monitored and how this may affect dose reconstruction
2b	**Assignment of coworker dose**	
2b-1	Question was raised on how the coworker models will be linked to individual workers and whether there is adequate information (job titles, dept titles, characterization information)	1. OTIB-0051 is a preliminary draft document for neutron doses. SCA will gather questions from their reviewers and provide to NIOSH, and schedule a phone conference with NIOSH / ORAU as needed. 2. The Skin/Extremity DR procedures are still under development