

SC&A Site Profile and SEC Updates: Area IV, Santa Susana Field Laboratory (SSFL)

John Stiver, CHP

Health Physicist and Program Manager

S. Cohen and Associates

**Contractor to: Advisory Board on Radiation Worker Health/ABRWH
Centers For Disease Control and Prevention**

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Background

- **2006-2007: NIOSH first issued the six-volume TBD comprising the SSFL site profile (ORAUT-TKBS-0038)**
- **January 19 – April 20 2006: Series of 5 worker outreach meetings**
- **June 22, 2007: SEC Petition 00093 received**
 - October 19, 2007: Petition qualified
 - February 20, 2008: Evaluation report sent to the Advisory Board
 - Petition discussed by Board – April 8 and June 26, 2008
- **August 16, 2008: SC&A submits review of SSFL site profile**
 - Unique in that site profile review was conducted in midst of an ongoing SEC petition process
 - total of 39 findings identified (many were different aspects of a single issue)
 - TBD 1 (Introduction) - 2 findings
 - TBD 2 (Site Description) – 6 findings
 - TBD 3 (Medical Dose) - 2 findings
 - TBD 4 (Environmental Dose) – 6 findings
 - TBD 5 (Internal Dose) - 16 findings
 - TBD 6 (external dose) - 7 findings

Background, Continued

- **August 26, 2008: First SSFL Work Group meeting**
 - All site profile findings discussed but NONE closed
 - Ongoing SEC deliberations
 - Need for petitioners review and comment
 - Discussed in terms of potential SEC impact
 - Findings determined to be site profile issues pended
 - Work group agreed that SC&A should combine closely related findings and produce a new SEC issues matrix
- **April 17 2009: Second Work Group meeting**
 - New SC&A SEC issues matrix with total of 13 findings
 - A mix of petitioner concerns, issues identified by NIOSH and combined SC&A findings
 - This is the matrix that we are currently working from
 - Discussions resulted in NIOSH being tasked with several action items for next meeting , which was held on April 20, 2010.

Background, Continued

- **A lot of SEC activity took place in the intervening year between the 4/2009 and 4/2010 WG meetings**
 - **April 28 , 2009 - SEC 00093 - ER revised**
 - **May 19, 2009 – SEC 00093: Board recommends a class be added to the SEC** (*January 1, 1955 – December 31, 1958*)
 - **Effective date July 18 2009**
 - **SEC Petition 00156**
 - **November 27, 2009: petition received and qualified**
 - **January 15, 2010: Evaluation report sent to the Advisory Board**
 - **Petition discussed by Board – February 9, 2010**
 - **March 5, 2010: Board recommends a class be added to the SEC** (*January 1, 1959 – December 31, 1964*)
 - **Effective date May 5, 2010**
 - **Combined SECs 00093 and 00156 cover the period January 1, 1955 – December 31, 1964**
 - **Outstanding SEC issues may impact 1964 end date**

Background, Continued

- **April 20, 2010: Third Work Group meeting**
 - Discussed 13 SEC issues in context of NIOSH action items from April 2009
 - SC&A presented a review of ORAUT-OTIB-0077, Rev. 00, External Coworker Dosimetry Data, August 2009
 - 5 issues regarding the appropriateness of the “Boice” database for coworker modeling
 - NIOSH Tasking
 - Complete external dose coworker model including a report on approach to neutron dosimetry
 - Complete an internal dose coworker model
 - Provide updates to environmental TBD methods
 - SC&A Tasking – Review the NIOSH work products as they are made available
- **June 14, 2010: NIOSH releases white paper on neutron dosimetry**
“Neutron Exposures at Area IV of the Santa Susana Field Laboratory and Related Sites”
- **October 2010 – SC&A nears completion on review of NIOSH white paper on neutron dosimetry**

Current Status and Concerns

- **Fast Forward to 2014**
 - No SC&A or Work Group activity since 2010
- **March 14, 2014:** NIOSH releases ORAUT-OTIB-0080 Rev 0. *Internal Coworker Dosimetry Data for Area IV of the Santa Susana Field Laboratory and the DeSoto Avenue Facility*
 - Uses Boeing database (Boice data set abandoned)
 - SC&A commences review in July 2014
- SSFL discussed briefly at April 2014 and July 2014 Board meetings
- **October 16, 2014:** Fourth WG meeting (teleconference)
 - NIOSH update on forthcoming work products
 - New revision of ORAUT-OTIB-0077 based on Boeing database
 - Environmental TBD revisions
 - Restart SEC finding resolution process
 - Only 1 of 12 issues closed (start date for nuclear operations)

Current Status and Concerns

- **Issues Matrix Status at close of October 16 2014 Meeting**
 - **The September 24, 2014, NIOSH update used in the meeting is posted on the DCAS website:** <http://www.cdc.gov/niosh/ocas/pdfs/abrwh/scarpts/sca-ssflsecim-r1.pdf>
 - **1 finding was closed**
 - #9 - Which areas (Area IV, Canoga Park, De Soto, and Downey) should be considered in the SEC petition and when did operations begin at these facilities (coverage dates)?
 - Research [Sapere and Boeing (2005)] indicates that pre-1955 activities consisted mainly of design and construction operation. Further, there is no indication that radiological operations took place before 1954.
 - Petition is for SSFL Area IV. Canoga Park, De Soto, and Downey have separate petitions
 - **1 open combined finding depends on internal coworker model (ORAUT-OTIB-0080, Rev 0)**
 - #10 Adequacy of the internal monitoring program, pre-and post-January 1, 1959 (SC&A Issue)
 - subsumes 5 sub-issues
 - Incomplete bioassay dataset and insufficient correlation of bioassay data to specific radionuclides
 - Missing radionuclides
 - Difficulties with uranium bioassay methods
 - No internal coworker model or source term data
 - Erroneous data interpretation

Current Status and Concerns

- **Issues Matrix Status, continued**

- **4 open findings depend on review of revised external coworker model (ORAUT-OTIB-0077 Rev 1)**

- #1: The 1959 Sodium Reactor Experiment (SRE) Incident and Release of Core Gases. (Petitioner Issue) (internal subsumed in SEC)
 - WG agreed that this is a probably a site profile issue
- #2 Radiation Badges: This issue was based on a Tiger Team report indicating “inadequate radiation badges.” (Petitioner Issue)
 - WG agreed that this is a site profile issue
- #7 Identification of workers with blank radiation exposure record sheets in their file (NIOSH issue)
- #13 Justification for assignment of external dose estimates is not provided, and there is no coworker model for external exposures (personnel records are also of concern). Subsumes 3 areas of concern
 - No external coworker model
 - Workers were unlikely to have been monitored for thermal neutrons
 - Dosimeter response to low-energy photons

Current Status and Concerns

- **Issues Matrix Status, continued**
 - **4 open findings depend on revisions to internal AND external coworker model**
 - #4 - Uranium Fires: The petitioner refers to numerous uranium fires, cites two incidents of a sodium explosion, and expresses concern that monitoring was lacking regarding facility incidents. (Petitioner Issue)
 - #6 - The Sodium Disposal Facility (also known as the Sodium Burn Pit): This facility was not adequately monitored and/or records are missing. (Petitioner Issue)
 - #8 - Monitoring of firemen from other sites who were involved with fires or other events at SSFL (NIOSH issue)
 - #11 - Lack of information related to the potential exposures associated with facility “incidents” (some overlap with Sodium Reactor Experiment and Sodium Burn Pit).

Current Status and Concerns

- **3 open findings Depend on Revisions to Environmental TBD**
 - #3 Tritium Plumes: Workers may have been exposed to drinking water contaminated with tritium. (Petitioner Issue)
 - #5 Air Monitoring: The petitioner maintains that air monitoring was insufficient. (Petitioner Issue)
 - #12 Lack of information on environmental exposures (SC&A Issue)
 - Combined finding that subsumes 2 issues
 - Back extrapolation of stack emission data: The surrogate use of the time-integrated average yearly gross alpha/gross beta stack emissions corresponding to years 1971 to 1999 (when stack measurements were taken) is likely to underestimate stack emissions for years 1954 through 1970
 - Contaminated groundwater impacting onsite drinking water supplies (some overlap with #3 above)

Current Status and Concerns (continued)

- **Status of SC&A Activities**
 - SC&A review of June 2010 NIOSH white paper on n/p ratios submitted to the work group on October 23, 2014
 - Nearing completion on review of ORAUT-OTIB-0080 Rev 0 (late November 2014)
 - Awaiting release of ORAUT-OTIB-0077 Rev 1 (External coworker model)
 - Awaiting release of Environmental TBD updates
 - Resolution of open SEC issues contingent on completion of all three reviews
- **Next WG meeting on/about January 9, 2015**

Questions?