

To: Work Group on Area IV of the Santa Susana Field Laboratory
From: SC&A, Inc.
Date: July 14, 2020
Subject: Summary of Worker Interviews Conducted in 2018 and 2019 in Support of the SEC-00246 Evaluation

Background and Introduction

In support of the evaluation of Special Exposure Cohort (SEC) Petition SEC-00246, SC&A, in conjunction with the National Institute for Occupational Safety and Health (NIOSH) and members of the Advisory Board on Radiation and Worker Health (ABRWH) Work Group for Area IV of the Santa Susana Field Laboratory (SSFL) and the De Soto Avenue Facility (“De Soto”), interviewed six former energy employees (EEs) via teleconference in November 2018 and May 2019. Additional attempts were made by the NIOSH contractor, Advanced Technologies and Laboratories (ATL) International, Inc., to contact other potential interview candidates during June and July 2019; however, these attempts were ultimately unsuccessful. The focus of these interviews was to gain further insight about any campaigns or other radiological activities involving potential exposure to radioisotopes of americium and/or thorium at the De Soto Avenue Facility. Interview topics also included coordination with or work in support of Area IV that may have included americium or thorium exposure potential that may have included the De Soto Avenue Facility. This memorandum summarizes each of the six EE’s employment background and any relevant information provided by the EE. The names of the EE interviewees were as follows: [REDACTED]

After the initial interviews were conducted, the notes taken by the interviewers were summarized into individual narrative documents that condensed the information provided. The six original interview summaries were then reviewed and cleared as not containing classified information or unclassified controlled nuclear information by the U.S. Department of Energy Office of Document Reviews – Office of Classification in Washington, DC during August and September 2019. The cleared interview summaries were then sent to the original interviewees during October for confirmation that the information provided was complete and accurate. SC&A received confirmative responses from five of the six interviewees over the course of the next several months, with the fifth confirmation received in April 2020. Repeated attempts to contact the sixth interviewee ([REDACTED]) were ultimately unsuccessful; therefore, the interview summary for this interviewee can only be considered interim in nature.

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Summary of Interviews

[REDACTED]: The EE was interviewed on May 8, 2019. The EE was a [REDACTED] in 1959, 1960–1962, and 1963–1978. The EE [REDACTED] but was not exposed to the radioactive material. The EE did not have to work directly with radioactive material. The EE did have to wear a film badge depending on where the EE was. The EE stated that there was some thorium testing, but the EE was not associated with those projects and could not provide further information. The EE did not recall fuel fabrication involving thorium at De Soto. Work with decladded fuel elements would have occurred at Area IV, not De Soto. Furthermore, to the EE's knowledge, the *only* work on spent fuel occurred at the Area IV Hot Lab (Building 4020). The EE stated De Soto was not equipped for work on spent fuel. The EE also did not believe any americium sources were opened or breached and stated that there were strict rules governing the use of radiological materials. Radioactive sources at De Soto were only for calibration.

[REDACTED]: The EE was interviewed on May 8, 2019. The EE worked at [REDACTED] SSFL from 1956 until 1958 and returned to De Soto around 1959 and stayed until 1967. The EE was a [REDACTED]. The EE was not aware of work on spent fuel at De Soto. Spent fuel was handled in the Area IV Hot Lab. The EE stated that there was thorium work done at Vanowen and believes there was some thorium work at De Soto, but the EE was not involved and does not have further information on the scope or timing of those operations. The EE stated that the De Soto facility was used for working with fresh fuels only. The EE did not recall any work on the fabrication of americium sources but stated that the possibility was not “inconceivable.” Finally, the EE only recalled one “incident” occurring during this work at De Soto/Area IV, but it did not involve radioactivity.

[REDACTED]: The EE was interviewed on May 8, 2019. The EE worked at SSFL, including Area IV and De Soto, from 1981 until 2006 as a [REDACTED]. The EE stated that there never was thorium fuel but that there were some thorium materials in the downstairs laboratories in De Soto in the form of natural thorium as part of ceramic material “ordered from supply catalog.” The EE stated that fuel fabrication had ended by the time [REDACTED] and only remediation activities were occurring at De Soto.

The EE stated that the EE was [REDACTED] and affirmed that there was no americium at De Soto except as sources, which were never opened. The EE would check sources for leaks (likely once per quarter) but never found any leaks. The EE stated that americium was not used to fabricate new calibration sources. However, the EE did state that there was americium-241 along with plutonium in the Area IV Hot Lab from the spent fuel operations as well as the Nuclear Materials Development Facility located in Building 4055. Both of these facilities are located in Area IV. That material ended up in the Radioactive Material Handling Facility, where it sat for 20 years. The EE had never heard of the transuranic management by pyro partitioning-separation (TRUMP-S) program.

The EE stated that during the 1980s, Boeing safety personnel were “ahead of everyone else in protecting people” and encouraged the EE's efforts to ensure radiation safety. Management would not overrule the safety personnel. Guidelines for detectable activity were generally more stringent than the EE's experience at other work sites, such as nuclear power plants. Specific

health physics monitoring took place during the 1990s disassembly (jackhammering) of the gloveboxes in Area IV that may have contained residual transuranic material.

[REDACTED]: The EE was interviewed on May 17, 2019. The EE worked for [REDACTED] from 1972 until 1987 and was the [REDACTED]. The EE stated that there was thorium in the storeroom, but the EE could not recall what work might have been done with it. The EE did not recall performing any spent fuel work because that material would have been too hot to handle. The EE specifically stated that no transuranic material was ever transported to De Soto.

The EE did not recall any work involving americium that was not encapsulated as a source. The EE did think they could remember having a solution of americium, but the EE did not remember how it would have been used. The EE did not know anything about the source of americium in a drain line that was found and was surprised there was any found. Considering the health physics controls, the EE felt it should have been discovered during the annual physical inventory if the same procedures were in place for the times before and after the EE was associated with the radioactive materials in the laboratory. The EE did not recall any incidents related to the spread of contamination.

[REDACTED]¹: [REDACTED]

[REDACTED]

[REDACTED]: The EE was interviewed on May 8, 2019. The EE worked at SSFL and De Soto starting in 1983, with the last year of employment unspecified. The EE was also [REDACTED]. The EE does not remember [REDACTED].

¹ The interviewee was not available to confirm that the interview summaries are complete and accurate; therefore, the interview summary described here and included in the reference section can only be considered an interim summary.

finding bags of thorium in Building 4 as was indicated on captured health physics survey logbooks. The EE initially said there was americium at De Soto because they performed a lot of experimental work at the site. However, the EE then modified this position and stated the EE needs to think about whether americium was present at De Soto and get back to NIOSH concerning any specifics.

In general, the EE did not recall large quantities of radioactive material (e.g., uranium-235) at De Soto, as that material had been removed prior to remediation. However, the EE did mention that while performing surveys at De Soto they were primarily looking for enriched uranium because the De Soto facility was used to make uranium fuel pellets. The EE had no knowledge of fuel decladding occurring at the De Soto facility and stated that they had no knowledge of other radionuclides at De Soto other than uranium-235. Finally, the EE felt that the safety culture at De Soto was not as desirable as the safety culture the EE encountered at other facilities and was told by management not to take notes or discuss work occurring at the site.

SC&A Summary Conclusion

One notably consistent theme among the interviewees was that decladding of spent fuel would not have occurred at De Soto because the facility was not equipped for such radiological work. This type of high-level radiation work would have only occurred at Area IV, where there were facilities constructed for such purposes ([REDACTED] interview summaries). The interviewees recalled that the De Soto facility was primarily used for uranium fuel work involving pellets and also powders ([REDACTED] interview summary). One interviewee indicated that radiochemistry on hot samples originating at Area IV was analyzed at De Soto; however, the interviewee could only identify them as being labelled mixed fission products.

Furthermore, the interviewees did not have specific knowledge about research or other operations concerning the TRUMP-S that may have exposed workers at De Soto and/or at Area IV during the 1980s ([REDACTED] interview summary). Americium was believed to only exist at De Soto in the form of calibration sources ([REDACTED] interview summaries) that were never opened, though they were consistently leak checked ([REDACTED] interview summary). One interviewee recalled that the actual americium source production occurred at Area IV and not the De Soto Avenue Facility.

SC&A believes these interviews are consistent with the results and conclusions of its initial review of the SEC-00246 evaluation report (SC&A, 2018), which concluded, in part:

In summation, SC&A believes that the limited available documentation supports the conclusion that exposure potential to unencapsulated americium from sealed sources, the TRUMP-S program, and radioactive smoke detectors is not probable. However, the documentation describing the presence of contaminated materials used in cleaning decladded fuel elements suggests that exposure to transuranic materials, including americium, may have existed in Building 1. Furthermore, indications of americium contamination in the Mass Spectrometry Lab drains in Building 4 suggest unencapsulated americium may have been handled at least on a bench-scale basis in those areas.

SC&A did not observe evidence of thorium operations that would result in an internal exposure potential that cannot be bounded by the intake estimates based on the documented thorium-grinding operation in 1979. [SC&A, 2018, p. 11]

Issues concerning the potential internal exposure to americium and thorium materials at the De Soto Avenue Facility are currently under discussion by SC&A, NIOSH, and the ABRWH Work Group for Area IV of SSFL and the De Soto Avenue Facility.

References

██████████ (2019). Documented communication with ██████████ on Santa Susana Field Laboratory – Area IV and the De Soto Avenue Facility. May 8, 2019. SRDB upload pending

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██████████ (2019). Documented communication with ██████████ on Santa Susana Field Laboratory – Area IV and the De Soto Avenue Facility. May 8, 2019. SRDB upload pending