SEC-00256 Board-Ready Source Verification
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Findings F-01 through F-04 — Pinellas Plant Special Exposure Cohort Petition

Contamination/Source Pathway • Worker Population • Missing Records • Measurement Reliability

Purpose and Evidentiary Approach

This exhibit organizes four connected evidentiary findings for Advisory Board review. It is designed to test whether the historical evidence supporting NIOSH's Pinellas plutonium conclusions is sufficiently complete, representative, and analytically reliable to support dose reconstruction with sufficient accuracy. The findings should be read as a chain: source/pathway → worker population → record completeness → measurement reliability.

Important qualification. F-01 does not assert that SRDB 13264 proves a gross plutonium release. Its stronger and more defensible significance is that Pinellas procedures anticipated receipt of Pu-238 sources with detectable removable contamination and provided for decontamination under specified conditions. That evidence requires reconciliation with broader statements that plutonium was unavailable as an internal-exposure source.

Board-Ready Source Verification Table

Finding	Verbatim NIOSH statement	Document / revision / exact page	NIOSH-cited SRDB source	Underlying primary-source evidence	Contradiction / tension	SC&A treatment	Unresolved Board question	SEC consequence
F-01 Contamination / source pathway	NIOSH states that RTG plutonium was "not a potential source of internal exposure" and concludes that no plutonium internal-dose methodology is necessary.	SEC Petition Evaluation Report, SEC-00256, Rev. 0, Oct. 13, 2021, §7.1.1.2, Plutonium, PDF p. 63 (pagination should be rechecked against the Board copy).	SRDB 13264 — GE, Safety Analysis Report, Expansion of Building 400 RTG Facility (May 1982); SRDB 12832 — Huffman, "Pu Contaminated Waste" (Jan. 30, 1979).	The later Pinellas internal-dose TBD describes incoming-source surveys and a procedure under which detectable contamination below a specified rejection/control level could trigger decontamination. NIOSH also reports from the Huffman memorandum that some received Pu-238 heat sources exceeded the detection limit.	The categorical "not available" conclusion must be reconciled with an acknowledged operational pathway involving incoming contaminated sources, contamination surveys, and decontamination. This evidence does not establish capsule failure or a major facility release; it establishes that source integrity cannot end the inquiry.	SC&A reviewed the 1982 SAR, including source inspection and decontamination procedures, but continued to regard plutonium as resolved absent new evidence.	Which workers opened, surveyed, cleaned, handled, transported, or repackaged incoming Pu sources with detectable contamination, and do complete worker-specific monitoring records survive for them?	If NIOSH cannot identify and characterize this subgroup, the sealed-source assumption cannot substitute for an exposure assessment for workers performing the intake-relevant operation.
F-02 Worker population / representativeness	NIOSH stated that "no potential plutonium exposures need to be assessed" for Pinellas workers who were not monitored for plutonium exposure.	ORAUT-TKBS-0029-5, Pinellas Plant—Occupational Internal Dose, Rev. 01, Apr. 1, 2011, §5.7.4, p. 25 of 39.	SRDB 12177 — internal dosimetry practices; SRDB 12971 — Building 400 Routine Air Sampling/Monitoring; SRDB 13264 — 1982 Building 400 RTG Safety Analysis Report.	NIOSH's later response identifies receipt inspection and/or decontamination of contaminated RTG sources as the potentially assessable worker activity. That makes identification of the complete population performing those tasks central to representativeness.	The conclusion that unmonitored workers require no Pu assessment depends on demonstrating that the monitored workers represent every worker with a credible Pu intake opportunity. Otherwise the inference risks circularity.	SC&A recognized the earlier Work Group resolution focused on newly received RTGs as the credible intake opportunity; SC&A also questioned whether all workplace-air conclusions could be generalized from available evidence.	Where is the complete roster of receipt inspectors, source handlers, decontamination personnel, HP staff, maintenance/support workers, and others present during those operations?	If the denominator cannot be established, monitoring representativeness and extrapolation from monitored to unmonitored workers cannot be demonstrated.
F-03 Missing records / 1984 Pu compilation	NIOSH reported that "no similar compilation of plutonium bioassay data has been found for 1984."	ORAUT-TKBS-0029-5, Pinellas Plant—Occupational Internal Dose, Rev. 01, Apr. 1, 2011, p. 25 of 39 (plutonium bioassay discussion).	NIOSH describes captured Pu compilations covering 1975–1990 except 1984; individual claimant records may exist separately in NOCTS or personnel files.	The absence is acknowledged by NIOSH. A claimant-specific file is not necessarily equivalent to a sitewide compilation needed to test population completeness, sampling frequency, missing workers, and anomalous results.	The issue is not merely a missing measurement. The missing compilation may affect the ability to determine who was monitored, whether required monitoring occurred, and whether the monitored population was complete and representative.	SC&A did not overturn the earlier Pu resolution solely because of the missing 1984 compilation; the broader Pu issue remained treated as resolved unless new evidence emerged.	Has NIOSH reconstructed the complete 1984 Pu-monitoring population from independent records, and can it demonstrate that the substitute reconstruction is complete?	If the missing compilation prevents determination of who was monitored versus who should have been monitored, the uncertainty concerns population completeness and therefore the evidentiary basis of reconstruction.
F-04 Measurement reliability / potentially positive results	NIOSH acknowledged that the "quality of bioassay data from Pinellas is questionable" in discussing limited data and problems associated with historical plutonium results.	NIOSH, Pinellas Plutonium Bioassay Data: Response to the Follow-up of Issue 3, Jan. 13, 2016, especially pp. 2–3.	SRDB 12743 — 1988 Pu bioassay results; SRDB 197484 — Bioassays and Recounts 1989 Pinellas (Jan. 3–Dec. 29, 1989).	NIOSH evaluated a group of potentially positive 1988–1990 measurements and applied baseline, isotope-ratio, reanalysis, MDC, and uncertainty criteria. NIOSH also discussed missing count-time information and analytical limitations.	If absence of qualifying positive measurements is used as evidence that intake did not occur, the analytical system must first be shown sufficiently sensitive and reliable to support that inference.	SC&A questioned plutonium bioassay quality, MDC calculations, and rejection of otherwise positive measurements using isotopic-ratio reasoning; NIOSH's 2016 response acknowledged the quality concern.	Can NIOSH reproduce the raw analytical chain for each potentially positive 1988–1990 result: sample volume, count time, tracer recovery, spectrum/counts, MDC, uncertainty, recount, QC, worker status, and reason for sampling?	If measurements support a plant-wide inference of no intake, their completeness, sensitivity, and analytical reliability must first be established. Failure to do so weakens a core premise of reconstructability.

Trace of Requested SRDB Records

SRDB 13264 — Building 400 RTG Safety Analysis

SRDB 13264 is identified as General Electric's May 1982 Safety Analysis Report concerning expansion of the Building 400 RTG facility. Its strongest evidentiary value is the operational sequence it documents: incoming source packages were surveyed and opened under controlled conditions, and source-survey procedures contemplated detectable contamination and decontamination before further use.

Read together with SRDB 12832, the 1979 "Pu Contaminated Waste" memorandum, the evidence establishes that detectable removable contamination on received Pu-238 heat sources was not merely hypothetical. The Board should therefore require NIOSH to identify the workers who performed receipt inspection, contamination surveys, source cleaning/decontamination, repackaging, movement, and associated Health Physics functions.

Board formulation: NIOSH cannot use triple encapsulation as the end of the inquiry when its own source documents identify receipt inspection as an intake-relevant operation and explicitly contemplate detectable removable contamination and decontamination.

SRDB 12971 — Building 400 Routine Air Sampling/Monitoring

SRDB 12971 is identified as R. A. Burkhart and J. A. Richardson, Building 400 Routine Air Sampling/Monitoring, General Electric Company, Pinellas Plant, July 1, 1986. This record should be treated as a location-and-representativeness exhibit, not merely proof that air monitoring existed.

The critical next comparison is spatial: place each Building 400 sampler relative to the source-inspection hood, vault, glovebox or controlled handling locations, source-cleaning/decontamination station, assembly areas, worker breathing zones, and any locations used for abnormal or maintenance work. Only then can the Board evaluate whether the monitoring represented the operation NIOSH itself identified as the credible Pu intake opportunity.

Board question: Where exactly were the samplers relative to the receipt-inspection and decontamination operations, and what worker populations did those samplers actually represent?

SRDB 197484 — 1989 Bioassays and Recounts

SRDB 197484 is identified by NIOSH as Bioassays and Recounts 1989 Pinellas, covering January 3 through December 29, 1989. It is important because the historical Pu record included measurements requiring interpretation, recounting, or application of analytical exclusion criteria rather than a uniformly simple set of clean negative results.

For each relevant 1989 result, the evidentiary audit should reconstruct the full chain: original reported result → raw counts or spectrum → sample volume → tracer recovery → count time → MDC/MDL → uncertainty → recount → quality control → worker identity/status → work operation → reason for sampling → final disposition.

Board question: Can NIOSH reproduce enough of the original analytical chain to demonstrate that the 1989 measurements are sufficiently reliable and sensitive to support a broader inference that plutonium intake did not occur?

Integrated Evidentiary Chain

- F-01 — Source/pathway: historical procedures contemplated detectable contamination and decontamination of incoming Pu sources.
- F-02 — Worker population: the complete population performing those intake-relevant operations must be identified before monitoring can be called representative.

- F-03 — Record completeness: the acknowledged absence of the 1984 sitewide Pu bioassay compilation raises a direct population-completeness question.
- F-04 — Measurement reliability: potentially positive or analytically problematic results cannot support an inference of no intake unless the underlying analytical chain is sufficiently recoverable and reliable.

Combined reconstruction issue. Uncertainty in source/pathway + uncertainty in worker population + an admitted monitoring-record gap + uncertainty in measurement reliability is not merely uncertainty in a numerical dose parameter. It reaches the evidentiary foundation needed to decide who requires reconstruction, what exposure pathway must be modeled, whether the comparison population is representative, and whether the measurements used to exclude intake are scientifically dependable.

Proposed Advisory Board Finding

The Advisory Board should require NIOSH to demonstrate an unbroken evidentiary chain from source integrity and exposure pathway through worker identification, monitoring selection, record completeness, analytical reliability, and dose reconstruction. Where the surviving evidence cannot establish one or more of those essential elements for the petitioned class, the uncertainty cannot be resolved merely by assuming that plutonium exposure was unlikely or by relying on the existence of a reconstruction method.

The decisive question is not whether NIOSH can calculate a plutonium dose. It is whether the historical evidence necessary to determine that dose exists with sufficient completeness, representativeness, and reliability to permit reconstruction with sufficient accuracy.

Source Verification Notes

1. NIOSH, SEC Petition Evaluation Report, Petition SEC-00256, Pinellas Plant, Rev. 0, October 13, 2021.
2. NIOSH/ORAUT, ORAUT-TKBS-0029-5, Pinellas Plant—Occupational Internal Dose, Rev. 01, April 1, 2011; later revisions should also be compared for changes in wording and source use.
3. NIOSH, Pinellas Plutonium Bioassay Data: Response to the Follow-up of Issue 3, January 13, 2016.
4. SC&A, review materials concerning SEC-00256 and Pinellas plutonium/bioassay issues.
5. SRDB 13264, General Electric, Safety Analysis Report, Expansion of Building 400 RTG Facility, May 1982.
6. SRDB 12971, R. A. Burkhart and J. A. Richardson, Building 400 Routine Air Sampling/Monitoring, July 1, 1986.
7. SRDB 197484, Bioassays and Recounts 1989 Pinellas, January 3–December 29, 1989.
8. SRDB 12832, Huffman, Pu Contaminated Waste, January 30, 1979.

Verification limitation: The titles, dates, and NIOSH/SC&A use of SRDB 12971, 13264, and 197484 have been traced through public NIOSH/SC&A materials. Where the complete raw SRDB file has not been independently inspected page-for-page, primary-document quotations and exact internal page citations should be marked for final verification before filing or presentation. This exhibit intentionally distinguishes verified NIOSH quotations from conclusions that still require raw-record retrieval.