

Evaluation of Petitioner Concerns About Data Falsification and Data Invalidation in RFP Building 123 Based on Worker Allegations and Issues Relating to the FBI Raid

White Paper
Rev. 4

National Institute for Occupational
Safety and Health

AUGUST 12, 2015

Mutty Sharfi and Dan Stempfley
Oak Ridge Associated Universities Team

Reviewed by LaVon Rutherford
Division of Compensation Analysis and Support

TABLE OF CONTENTS

INTRODUCTION3

1.0 ADDITIONAL TOPICS REQUIRING NIOSH REVIEW AND RESPONSE4

1.1 INTERVIEWS RELATED TO THE FBI RAID INVESTIGATION 7

1.2 REVIEW OF: AN INSIDER'S VIEW OF ROCKY FLATS: URBAN MYTHS DEBUNKED 9

1.3 FOLLOW-UP RESEARCH: AVAILABILITY AND ACCESSIBILITY OF RELEVANT DOCUMENTS..... 10

2.0 ADDITIONAL ISSUES RELATED TO THE EXPANDED POST-1983 SCOPE13

2.1 ADDITIONAL COLORADO VISIT FOR DATA CAPTURE AND INTERVIEWS 13

2.2 ADDITIONAL POST-COLORADO SITE VISIT/DATA CAPTURE INTERVIEWS..... 17

2.2.1 DATA FALSIFICATION INTERVIEWEE 17

2.2.2 FBI RAID INTERVIEW AND FOLLOW-UP INFORMATION REVIEWS..... 18

2.3 REVIEW OF PETITIONER-IDENTIFIED RFP TECHNICAL SAFETY APPRAISAL ISSUES 22

2.4 REVIEW OF PETITIONER-IDENTIFIED DATA FALSIFICATION ISSUES/REPORT 24

2.5 ADDITIONAL INFORMATION FROM RFP MANAGER PERSONAL NOTEBOOK/LOGBOOK..... 25

3.0 ASSESSMENT OF AVAILABLE PERSONNEL RADIOLOGICAL MONITORING DATA.....25

4.0 GENERAL SUMMARY AND CONCLUSIONS.....28

INTRODUCTION

This technical evaluation originated from the follow-up of the SEC-00192 Rocky Flats Plant (RFP) Evaluation Report review by the RFP Board Working Group. The SEC-00192 petitioner initially identified issues relating to allegations made by a former RFP worker in interviews conducted on October 24-25, 1989, by the U.S. Environmental Protection Agency's (EPA) National Enforcement Investigation Center's (NEIC) Office of Criminal Investigations and the Federal Bureau of Investigation (FBI). These interviews resulted from a phone call by the interviewee to the FBI Rocky Flats Hotline on June 16, 1989, alleging safety violations and manipulation of laboratory samples at RFP. A redacted transcript of the interviews was provided to NIOSH by the EPA Office of Criminal Investigations (SRDB 122614) and reviewed for this evaluation/white paper. Specifically, the EPA/FBI interviews were reviewed to technically assess the allegations and their relevance to potential data falsification and/or data invalidation in Building 123 as it might affect the technical basis for dose reconstructions under EEOICPA. Building 123 was the Analytical Health Physics Laboratory, and as such, was the location where RFP health physicists generated the data used in the evaluations presented in this white paper.

This white paper is in four parts. Section 1.0 addresses additional topics regarding the October 1989 FBI raid. These topics resulted from continued discussion with the petitioner and the RFP Board Working Group and were assigned as additional scheduled tasks requiring NIOSH review and response. Section 2.0 addresses additional issues related to the expanded post-1983 scope of the RFP effort. In October 2013, NIOSH's research identified issues that led to the reversal of the decision that dose reconstruction was feasible for the classes being evaluated outside of the existing SEC class identified in the SEC-00030 RFP ER. The decision to recommend a class at RFP from April 1, 1952 through December 31, 1983 was based on dose reconstruction limitations specific to U-233, neptunium, and thorium. Meanwhile, RFP issues and potential resolutions continued to be reviewed for the periods after 1983. NIOSH continued the evaluation of the FBI raid and data falsification issues at RFP and expanded the scope of the previous version of this white paper to cover site-wide issues for the post-1983 period. Additional issues were also brought up by the RFP Working Group and petitioner that fell within the expanded evaluation scope. Section 3.0 provides a brief assessment of available personnel radiological monitoring data, and Section 4.0 provides a general summary and conclusion.

1.0 ADDITIONAL TOPICS REQUIRING NIOSH REVIEW AND RESPONSE

As part of the 1989 FBI/EPA interviewee's work history review, it was noted that the interviewee worked several entry-level positions at RFP before accepting employment as a Bio-Assay Health and Environmental Technician in the Analytical Health Physics Laboratory in Building 123. The interviewee began this assignment after entering and completing a four-year Indentured Laboratory Technician Program (1982-1986) sponsored by Rockwell International. The program incorporated chemistry and physics classes and included on-the-job training and work in the laboratory. After 6½ years of serving in this position, the interviewee left his employment with Rockwell over concern for his own health and safety.

A review of the interviewee allegation relevant to data falsification and/or data invalidation in Building 123, including an ORAUT reviewer response, is detailed below.

- During the interviewee's time as a Bio-Assay Health and Environmental Technician in Building 123, he indicates that the fume hoods were inadequate. He states that a piece of pH paper he taped outside the fume hood turned bright red immediately.

Reviewer Response: The pH is an indicator of acidity rather than radioactivity. There could have been a chemical hazard issue; however, the amount of radioactive material involved in this work should have been small and there is no indication that personal monitoring was not in place. [Note: The interviewee's name and specific dates of employment are redacted in the FBI interview transcript; thus, NIOSH is unable to review relevant radiation dosimetry data.]

- During the interviewee's time as a Bio-Assay Health and Environmental Technician in Building 123, he states that environmental and bioassay samples were routinely left on the shelf for too long and not refrigerated or preserved properly.

Reviewer Response: From a radiological perspective, there is no scientific basis for concluding that sample counting performed weeks after collection would compromise the results for the target radionuclides. The half-lives of these target radionuclides are too long for the intervening time period to significantly impact the results. Nevertheless, as discussed in regard to sample-counting delays, a vial sitting for weeks, if properly processed during analysis, should not compromise the radiological count results.

Interviews were performed with two former RFP employees associated with the Radiological Program who were present during the time period of the FBI raid. One interviewee was a customer of the bioassay lab (SRDB 126995). Although he did not have direct knowledge of the bioassay lab's operations, he indicated that he believed that routine bioassay samples could have sat unprocessed and uncounted for as long as a week or two if there was a backlog. Special samples (i.e., taken due to an exposure) were given the highest priority and their analysis would therefore supersede analysis of routine samples. The other interviewee was in charge of the bioassay lab (SRDB 127272). He indicated that although some of the samples may have sat a few days at the guard shack (where they were dropped off by employees), the samples were processed the day they were received in the bioassay lab. Both interviewees confirmed the use of nitric acid in the samples to address any biological growth or sample-container-plating issues. The head of the bioassay lab indicated that while excrement (fecal) samples were refrigerated, urine samples were not refrigerated (i.e., there was no requirement). He further indicated that any bacterial or mold issues associated with any biological sample were immediately remedied when the nitric acid was added to the sample container. He also indicated that, in the case of plastic sample containers, hydrofluoric acid was used to address any plastic-container-plating issues. This information confirms that RFP was aware of, and did address the sample preservation issue raised by the FBI investigation interviewee.

- During the interviewee's time as a Bio-Assay Health and Environmental Technician in Building 123, he indicates that fecal coliform samples were diluted in order to get the count rate low enough to be counted. The sample was then recorded in the logbook as a count relative to the amount of dilution. He states that the amount of dilution was sheer guesswork. The samples could only be analyzed once based on the amount of sample collected. If an incorrect guess was made on the amount of dilution, and the sample was over-diluted, the count could or would be zero.

Reviewer Response: Coliform measurement has no relationship to the assessment of radioactive material.

- During the interviewee's time as a Bio-Assay Health and Environmental Technician in Building 123, he recalls that occasionally there would be a release of plutonium in a production building. As is the case with water samples, when stack filters were analyzed

they were divided in half and if the first half was found “unacceptably high” then the second half was counted.

Reviewer Response: Stack sample results are not used to support reconstructing dose for RFP personnel because stack samples are considered a measure of environmental releases and not representative of workplace exposure conditions. It is common lab protocol to divide a sample into aliquots to preclude a sample being lost or compromised in process. The interviewee did not indicate that the analytical process for the other aliquots was different. It is expected, and not unusual, to perform a count on the second part of the sample to confirm the results of a first count (i.e., to verify an “unacceptably high”, or otherwise unexpected, sample counting result). The process of using a second sample to confirm or verify a first can rule out cross-contamination of the first count in the counting laboratory, or be used to identify a radiological sample-counting anomaly that requires further investigation.

- During the interviewee’s time as a Bio-Assay Health and Environmental Technician in Building 123, he indicates that there was improper collection of environmental water samples.

Reviewer Response: The issue of improper collection of environmental water samples is noted. However, it is also noted that the collection of environmental samples is not directly related to the collection and analysis of personal monitoring results used for dose reconstructions under EEOICPA. The further analysis of any potential relationship between the collection and handling of environmental and occupational radiological samples has been reviewed as part of the additional analysis presented in this white paper. The information does not corroborate a link between the environmental and occupational radiological programs, as may be suggested by this interviewee’s issue.

1.1 INTERVIEWS RELATED TO THE FBI RAID INVESTIGATION

Most of the information and incidents described by the FBI interviewee do not provide sufficient detail to support a follow-up investigation of the claims. Nevertheless, as part of the follow-up efforts, four individuals with potential related knowledge or information that might provide insight into the statements offered by the FBI interviewee were located and interviewed by NIOSH. A summary of the interviews is presented below.

- A former RFP consultant who worked from 1990 to 1992, managing both internal and external dosimetry (SRDB 123339), was interviewed. He returned as a RFP employee from 1994 to 2005 working in Internal Dosimetry. In 2001 to 2002, he also worked with the State of Colorado as manager of their Radiation Control Program. As such, his RFP experience was related to the time period directly after the FBI raid (he had no information or experience relating to the time period prior to the raid). These observations have relevance if one assumes that the 1989 protocols in place in the FBI investigation timeframe were essentially the same as those in place when he began work in 1990, which is supported by Building 771 Laboratory sample-handling procedure reviews over the pre- and post-1989 FBI raid period (SRDB 126860). During his interview, he made the following observations (summarized below):
 - Environmental monitoring and personnel dosimetry were separate programs, although their respective samples were analyzed in the same low-level, on-site lab. Around 1997-1998, the on-site lab was shut down and everything was contracted out. Turnaround times on samples were sometimes a problem, especially for Pu, but not so much for tritium. While he was there, there was no routine tritium monitoring program, just some pre and post-job tritium analyses. There were no significant tritium intakes during his RFP employment.
 - Based on his RFP experience, there is no specific link between environmental and bioassay results; the same numbers might have a different significance in environmental versus bioassay samples.

- RFP had a state-of-the-art program for dealing with compromised personal protective equipment. They had CAM alarms, nasal swipes, and bioassay. Bioassay would be done immediately if there was a suspected exposure (not necessarily at the end of the work shift). RFP also had a wound counting program.
- In bioassay analysis, the RFP lab staff used hoods. There was a complete industrial hygiene (IH) staff. The interviewee is sure the airflow was tested and is not aware of any injuries or complaints regarding hoods. Strong acids were used in bioassay for fecal samples, but he recalls no incidents.
- An individual serving as a RFP contractor from 1991-1998 and an RFP internal dosimetrist from 1999-2003 was interviewed (SRDB 123338). Based on the employment period, this individual also only had RFP experience outside of the investigated time-period of the FBI raid (he had no information or experience relating to the time period prior to the raid) and had no specific information or feedback pertinent to this review of the FBI raid or data falsification at RFP.
- A former RFP employee indicated that the FBI raid involved specific people; therefore, information was provided only on a need-to-know basis (i.e., those not specifically involved in the investigation received no information about what was going on). Because the raid was related to environmental issues (as opposed to occupational radiological issues), there was no involvement from the bioassay program perspective. Accordingly, there were no radiological program changes made as a result of the raid. This interviewee was not informed of any aspects of that raid. He indicated that his department did not know the raid happened until they heard it in the news. The interviewee also indicated that, to this date, he has not been informed of any aspects of the raid (SRDB 126995).
- A second former RFP employee confirmed that the FBI raid involved specific people and only those who were involved received information about what was going on. He also confirmed that the raid was related to environmental issues and not occupational radiological issues. Because there was no involvement from the bioassay program perspective, there were no radiological program changes made as a result of the raid (SRDB 127272).

Reviewer Response: Based on the information from the interviewees, the focus of the assessment and the FBI raid was very specific to environmental impacts and monitoring. Because the personnel radiological monitoring program was not involved in the raid or associated assessment, there is no direct translation of the identified environmental findings/deficiencies into findings/deficiencies in the worker monitoring program - no such formal allegations were made. Personal monitoring is the primary focus of individual dose reconstruction under EEOICPA.

1.2 REVIEW OF: AN INSIDER'S VIEW OF ROCKY FLATS: URBAN MYTHS DEBUNKED

An Insider's View of Rocky Flats: Urban Myths Debunked written by Farrel D. Hobbs (a former RFP worker) was also reviewed for this paper (SRDB 104858). The author implies (and most articles accessed via the Internet seem to agree) that the FBI raid on RFP found no issues with worker protection or the worker monitoring program. The only violation cited for RFP was an environmental release.

Reviewer Response: This response is not intended to imply that an environmental release is not an issue; however, such a release does not indicate an issue with the radiological monitoring program or the resulting data that are relied upon to perform dose reconstruction under EEOICPA.

An audit was performed by a DOE Special Assessment Environmental Team that focused on environmental issues, finding 95 deficiencies of varying types (SRDB 21359). The following two deficiencies mentioned the Building 123 laboratory:

- Under *Radiation*: Quality Assurance (QA) and Quality Control (QC) practices for radiochemistry analyses in the Building 123 HS&E Laboratory do not conform to generally accepted practices. The description of the finding further defines that the analyses were specific to environmental monitoring at RFP.
- Under *Quality Assurance*: QA/QC practices at Building 123 HS&E laboratory for environmental analyses are not adequate to document validity of data.

Reviewer Response: Based on the information discussed in the DOE Special Assessment report, the focus on the assessment was very specific to environmental impacts and monitoring. Although the report discusses data QA and validation issues with the analytical laboratories in Building 881 and Building 123, there were no situations identified where falsification or invalidation of data would impact the ability to perform dose reconstruction under EEOICPA (SRDB 21359, Sections 7 and 8).

1.3 FOLLOW-UP RESEARCH: AVAILABILITY AND ACCESSIBILITY OF RELEVANT DOCUMENTS

The initial documentation obtained that related to the FBI raid and subsequent litigation includes:

- A report from a DOE Environmental Special Assessment Team (one of four assessment teams that also included Management and Operations, Safety, and Legal Matters) (SRDB 21359). These teams were mobilized by the Secretary of Energy to perform a separate evaluation in parallel with the FBI investigation in order to provide the Department with an independent assessment of Rocky Flats at the time of the raid.
- A 1995 symposium presentation titled, *Are You Prepared To Survive an FBI Raid At Your Facility?* This specifically discusses aspects of the 1989 FBI raid as well as the legal charges resulting from the raid (SRDB 122696).
- A detailed published response from a manager in the Environmental Department who was apparently an individual of investigative interest during the FBI raid (*An Insider's View of Rocky Flats: Urban Myths Debunked*) (SRDB 104858).
- A petitioner representative provided the DOE's Initial Agency Decision for Case No. VWA-0031 dated August 6, 1999 (SRDB 125051). This case involves a complaint from a former RFP worker alleging management reprisals following disclosures of possible health and safety violations and site mismanagement. The scope of the allegations is outside the time-period and location under evaluation in this paper and does not impact NIOSH dose reconstructions for RFP.

Although it initially appeared that many of the site documents relevant to the period of the FBI's RFP raid were sealed in files associated with the litigation, coordination with individuals who manage RFP site records resulted in access to additional pertinent documents that support this assessment. While this attempt included efforts to locate the three remaining special assessment Tiger Team reports (for Management and Operations, Safety, and Legal Matters) that relate to the available DOE Environmental Special Assessment Team report (SRDB 21359), on August 15, 2013, the RFP records managers reported via email that they performed an extensive search and were unable to locate the other three Tiger Team reports. The documents located and provided by RFP records managers include:

- The complete Grand Jury Report, dated January 24, 1994, on the allegations and evidence from the FBI's RFP raid (SRDB 126910). This report provides specific explanations of the Resource Conservation and Recovery Act (RCRA) and environmental violations associated with the FBI raid. No personnel monitoring violations or other occupational radiological monitoring program deficiencies are identified in the report.
- Copies of RFP Occupational Radiological Control Program procedures, including pre- and post-FBI raid versions for determining if the site revised its procedures as a result of the raid. Also, a Building 771 Laboratory Sample Handling procedure includes a series of procedure revisions spanning the pre- and post-raid period. The revisions support the notion that no procedural changes resulted from the raid (SRDB 126860).
- Examples of post-raid air sampling, bioassay monitoring, contamination monitoring, nasal swab, and instrument operations procedures and manuals (SRDB 126927; 126926; 126925; 126924; 126923; 126922; 126920; 126919; 126917; 126916; 126913; 126906; 126902; 126901; 126899; 126896; 126895; 126892; 126890; 126888; 126887; 126886; 126885; 126884; 126883; 126882; 126881; 126880; 126878; 126877; 126876; 126874; 126873; 126872; 126871; 126869; 126868; 126867; 126866; 126864; 126863; 126836; 126833; 126831). According to one interviewee, the site did not commence archiving previous procedures until the late 1980s; prior to that, obsolete versions were destroyed when new versions were put into place. This previous policy may explain why the above archived procedures only go back to the early 1990s (SRDB 126995).

NIOSH coordinated with the DOE representative to obtain a collection of Denver Environmental Management Consolidated Business Center (EMCBC) classified and unclassified documents that would support the assessment of impacts during the time of the FBI raid. These documents are stored at a classified document storage location. A data capture trip was completed the week of August 5-9, 2013. The information from the captured documents supports the notion that any radiological program document/procedure revisions that were occurring around the time of the FBI raid were made as a result of a review and assessment of the Radiological Control Program directed by the site managers before the FBI raid. This site's review and assessment included responses to a GAO audit and Technical Safety Appraisal (that appears to have included input from the Institute of Nuclear Power Operations [INPO]) (SRDB 127117; 127153; 127201-127212; 127214; 127216; 127218; 127258-127265).

Reviewer Response: Based on the review of the documents collected in total as part of the follow-up document collection, NIOSH concludes that the reviewed information resulted in no impact that affects the ability to adequately reconstruct individual doses under EEOICPA. The specific information from the collected documents that support this conclusion includes:

- As stated by the U.S. Attorney in the RFP sentencing memorandum, there were no identified situations that posed an imminent threat to RFP workers, the public, or the surrounding environment (SRDB 122696, PDF p. 13).
- Although the initial FBI investigation identified potential issues at RFP, the resulting FBI raid did not result in the same findings that initially seemed apparent to the EPA and FBI (based on the previous allegations and investigative characterizations that led to the raid) (SRDB 104858).
- The charges against Rockwell at RFP were specific to environmental RCRA and Clean Water Act Laws and the impact to the environment; the charges did not specifically call out a data falsification, data validity issues, or a data quality violation that would impact the ability to perform sufficiently accurate dose reconstructions under EEOICPA, which is the focus of the SEC review in this white paper (SRDB 122696, PDF p. 13-14).

2.0 ADDITIONAL ISSUES RELATED TO THE EXPANDED POST-1983 SCOPE

The October 2013 decision to recommend a class at RFP from April 1, 1952 through December 31, 1983 was based on dose reconstruction limitations specific to U-233, neptunium, and thorium. NIOSH continued to review RFP issues and potential resolutions for the period at the site after 1983. These issues included the evaluation of the FBI raid and data falsification issues at RFP, as well as the issues that were also brought up by the RFP Working Group and petitioner that fell within the expanded evaluation scope. The scope of the previous version of this white paper was expanded to cover site-wide issues for the post-1983 period. FBI raid and data falsification issues, as well as the RFP Working Group and petitioner issues brought up after the recommendation of the SEC00192-RFP SEC class, are discussed in this section.

2.1 ADDITIONAL COLORADO VISIT FOR DATA CAPTURE AND INTERVIEWS

Additional contacts that may have pertinent/relevant information to the issues being investigated as part of this follow-up paper were identified from Board Working Group meetings. One individual (SRDB 129519) was scheduled for an unclassified telephone interview (followed by a classified telephone interview and follow-up call). A second individual (SRDB 131488) specifically requested a classified interview and was interviewed in a secure setting at a location in Idaho Falls just before the December 2013 Denver data capture trip. The December 2013 data capture and interview trip incorporated the follow-up and investigation for multiple issues and tasks, including this FBI Raid and Data Falsification follow-up paper being worked as part of the RFP petition issue assessment. Only the data and information from interviews collected by NIOSH as part of the effort for this paper are discussed here.

- The individual involved in the unclassified interview provided information regarding his/her personal involvement in shredding documents (as pertinent to this petition and the EEOICPA dose reconstruction process). The individual indicated that the direction for document destruction came from RFP management. The individual discussed feeling uncomfortable about destroying the documents as they were originals containing information on RFP operations, including monitoring data and incident reports. Several potential interviewee names were provided during the interview and the individual provided examples of the documents that were destroyed/shredded as part of the process he/she was involved in (examples were received after the interview). The individual also discussed his/her clearance

and indicated a desire to participate in a secure interview to discuss other information relating to the document destruction process, which may be classified.

A follow-up interview was performed in February 2014 (SRDB 131005) to collect additional information and documentation that was discussed during the initial interview with the first interviewee. A secure telephone interview was scheduled and completed in May 2014 at the request of the interviewee (SRDB 133781) with all information discussed during that interview cleared for uncontrolled use and dissemination. This secure telephone interview resulted in information from the initial interview being restated with additional information regarding what was believed to be the projects related to the documents that were being shredded and destroyed. A final follow-up telephone discussion was performed in June 2014 (SRDB 132787) to discuss the results of the document/information reviews and information provided during the preceding interviews.

Reviewer Response: The findings of the discussions and document/information reviews provided by this interviewee are as follows:

- While the documents being destroyed could have been some kind of field surveys, it does not appear that those surveys have an impact on NIOSH's ability to bound or reconstruct dose for the class, as long as the personnel monitoring data exist. Based on a review of some of the files that were provided as examples of documents that the interviewee believed were destroyed, NIOSH found that the records did exist in the associated personnel files in NOCTS; thus, those files were not destroyed.
- A potential additional interviewee was mentioned during this interview that was already on the NIOSH list of desired interviewees; however, there has been no success coordinating with this individual to schedule an interview.
- The individual interviewed during the classified interview performed at Idaho Falls (as part of the December 2013 Denver data capture trip) provided information relevant to the assessment of data falsification at RFP. This individual did confirm the separation of the Environmental and Occupational Radiological Analysis programs within Building 123. The individual also relayed information pertinent to the ability to reconstruct radiation dose. The pertinent information related to bioassay and personnel monitoring and specifically involved

information regarding penciling-in and changing dosimeter readings, misplaced or lost bioassay samples, as well as contamination incidents and safety issues at RFP.

Some specific information from this interview (released through ADC review) is:

- Penciling-in dosimeter information – the interviewee discussed a situation where dosimetry technicians wrote down dose rate information on reports in pencil, which would allow RFP management to later direct changes to keep the production going at RFP. It was relayed that this issue was addressed through a grievance at RFP.

Reviewer Response: Based on NIOSH Health Physicist professional judgement and field experience, the issue of “penciling-in” information appears to be referring to radiological field survey records that directly relate to on-going production operations. The only dosimetry information that may be included in such field surveys would be from direct-reading dosimeters (DRDs) or personal ion chambers (PICs – a.k.a. Pencil Dosimeters). Field survey information is used for comparison purposes in the performance of EEOICPA dose reconstruction; however, the primary and most impactful source of radiological information for the purpose of individual dose reconstruction is the individual TLD dosimetry and bioassay information. TLD and bioassay analyses are performed in a laboratory and not documented in the field, in contrast to the surveys and reports discussed in the claim raised by this individual. Therefore, it is not expected that the original, handwritten documents that the interviewee refers to in the destruction process are related to an individual’s TLD or bioassay results (with electronic readouts – SRDB 953; 24337; 24342).

- RFP bioassay issues – the interviewee relayed personal concerns with the bioassay program and relayed a specific concern about bioassay sample analysis results (false positives and [statistical] variations in bioassay results – see similar second interviewee claim and response in the next section of this white paper titled: “Additional Interviewees Identified: Five New Potential Interviewees”). While no other specific concerns about falsification of records were brought up, the interviewee did raise other general concerns regarding bioassay sample handling and processing.

Reviewer Response: This concern does not raise any issues that invalidate the use of personnel bioassay data in the performance of dose reconstructions under EEOICPA. The NIOSH dose reconstruction process accounts for the potential for missed doses and incorporates methods that are favorable to the claimant. Therefore, NIOSH concludes that this issue does not impact the dose reconstruction process.

- Personnel contamination problems and other contamination incidents – the interviewee brought up a significant number of radiological and some non-radiological contamination incidents and exposure-control issues in reference to the overall safety program at RFP.

Reviewer Response: Contamination incident and survey data are used to supplement the personnel monitoring data in the performance of dose reconstructions under EEOICPA. Personnel monitoring data are considered the primary data sources for the process. Therefore, NIOSH concludes that this issue does not impact the dose reconstruction process.

- Tritium bubblers, Np, Mg-Th Alloy, and Criticality Lab – the interview provided some information on these other issues at RFP.

Reviewer Response: All of these issues are outside the scope of this paper and are addressed in other topic-specific papers.

2.2 ADDITIONAL POST-COLORADO SITE VISIT/DATA CAPTURE INTERVIEWS

Five additional potential interviewees with information on the subject of this white paper were identified from Board Working Group meetings, petitioner information, and individual interviews. NIOSH attempted to schedule interviews with each of them. Two of the five were contacted and interviewed, one in regard to data falsification and one in regard to the FBI raid; the remaining three either did not agree to be interviewed or did not return messages requesting an interview. Only the data and information from interviews collected by NIOSH as part of the effort for this paper are discussed here.

2.2.1 DATA FALSIFICATION INTERVIEWEE

The individual interviewed as part of the data falsification follow-up (SRDB 130943) had served as a chemical operator and radiological control technician during his/her employment at RFP. The interviewee confirmed that Environmental Radiological Program changes did occur as a result of the FBI raid. The interviewee also brought up concerns associated with personal radiological monitoring records and the radiological monitoring program at RFP, which documented varying positive and negative bioassay results in an individual's dose records.

Reviewer Response: No information provided during this interview supported the allegation of document destruction activities at RFP. While the individual discussed his/her concerns with the implementation of radiological limits and controls as well as dose reporting during his/her employment, up to the point of the implementation of the *DOE Radiological Control Manual* at the site (late 1980s to early 1990s) and the FBI raid, there were no identified impacts on the ability to bound dose for the portion of the class of RFP workers being assessed as part of this white paper. It was confirmed that the focus of the FBI raid was environmental radiological issues and that program changes did occur as a result of the raid. The other concerns that were relayed were associated with personal radiological monitoring records and the documentation of the statistical or sample-counting variations that may produce positive and negative bioassay results associated with the analysis of a potential exposure situation in an individual's dose records. This interviewee specifically mentioned situations in which the site would increase limits to preclude exceeding them. He/she indicated that, in other cases, the reported results would indicate "no data available" when he/she believed that there were results that were available (i.e., based on their knowledge of the area survey results, personnel should have a

recorded dose value). The interviewee informed NIOSH that when there were problems with the dosimetry readings, the individuals would receive an average of his coworker's doses. The interviewee believed that there are cases where these averages are incorrect. These issues were assessed by ORAUT Principal Dosimetrists who considered the interviewee information, reviewed claimant files for comparable/corroborating situations, and assessed the impacts of the verified issues on the completion of the NIOSH EEOICPA dose reconstruction process. The assessment specifically focused on any negative impacts that the interviewee concerns may have on individual dose reconstructions. The ORAUT Principal Dosimetrists did not identify any situations or issues that impact the ability to reconstruct dose for the RFP worker class being assessed as part of this white paper.

2.2.2 FBI RAID INTERVIEW AND FOLLOW-UP INFORMATION REVIEWS

The SEC-00192-RFP petitioner identified the lead FBI agent involved in the 1989 FBI raid (SRDB 131006) and provided the applicable contact information for the former agent. The agent was subsequently interviewed for this paper and provided a significant number of papers and documents relating to the FBI's raid of RFP in 1989. Many of the documents were the property of other government agencies or entities and required release by the applicable agency general counsel before NIOSH could reference and use the associated documents in this EEOICPA project-response paper. The following subjects and issues were identified during the NIOSH interview and subsequent follow-up with the agent:

- The contention of the agent was that there was an additional August 1989 aerial Multispectral Scanner Survey (MSS) performed at RFP in addition to the one performed in June/July of 1989. The agent submitted a FOIA to DOE requesting that additional MSS information be provided. DOE completed searches and discovered no additional survey information. The agent submitted an appeal of that response, which was subsequently denied by the DOE Office of Hearings and Appeals citing that the search was adequate and no additional information is available from Legacy Management (SRDB 133645).
- Part of the response to the FBI raid at RFP was for DOE to initiate its own special assessment of the site using Tiger Teams, which paralleled the operations of the FBI raid. The report that is currently available is titled *Assessment of Environmental Conditions at the Rocky Flats Plant*, written by the U.S. DOE Special Assignment Environmental Team in August 1989 (SRDB 21359; 131929). In addition to this report, three other reports for management

and operations, safety, and legal matters are identified; however, those reports are not available and do not appear to exist based on extensive coordination and searching with the FBI agent as well as DOE and Legacy Management in Denver.

- There is a contention that the flyover data indicate the presence of the isotopes Cs-137 and Sr-90, which is used to imply that an unreported criticality occurred at RFP. This relates to the contention from the agent in regard to the existence of an August 1989 flyover MSS.

Reviewer Response: No August 1989 flyover survey has been located, as asserted by the former agent. In addition, no specific information was located that supported a criticality event, as claimed by the agent. NIOSH interviewed individuals to assess the criticality claim with the following results:

- Subsequent interview discussions and a report obtained from an interviewee do not corroborate the occurrence of a criticality at RFP. This includes the 1989 Criticality Safety Assessment at Rocky Flats that starts on page 277 (of the PDF file) of the *Assessment of Environmental Conditions at the Rocky Flats Plant* (SRDB 131929). The Assessment Team found no indication that a criticality accident ever occurred at Rocky Flats.
- An interviewee also provided a report subsequent to his interview that concludes there is no evidence to support that a criticality occurred at RFP (SRDB 133226). The report does go on to identify issues with the Criticality Safety System and Program at the site and includes fixes for the issues, but no conclusive evidence, monitoring or other, was identified to support the occurrence of a criticality incident.
- The agent discussed the Waste Stream Identification and Characterization (WISC) Reports and identified them as a major source of information to support the raid at RFP. The entire set of WISC reports was obtained and reviewed for applicability to the SEC evaluation process for RFP. While the information may have been useful to characterize conditions and issues at the time of the raid, no information to support SEC claims at RFP were identified in the review of the WISC reports (SRDB 132654-132679).

- As part of the response to the NIOSH interview, the agent provided over a thousand pages of documents. Other than the documents specifically called out in this section, the remainder are considered the property of another government entity or legal interest and requires coordination between CDC/NIOSH-DCAS and OGC and the legal representatives of the other organizations to obtain approval to obtain and reference the applicable documents. The documents applicable to the assessment presented in this response paper include: (1) RFP personnel interviews (performed by both the FBI and EPA) performed at the time of the raid; (2) FBI research leading up to the raid; (3) Building 123 information associated with the FBI investigation and warrants; and (4) 1988 aerial survey documentation of the RFP site. The documents that are the property of the FBI were released by the FBI general counsel on 1/26/15; the general counsel release approval for the DOE and EPA documents was obtained on 4/21/15.
 - FBI Interviews: SRDB 141291; 141293; 141298; 141299; 141301; 141302; 141303; 141304
 - EPA Interviews: SRDB 142722, PDF pp. 1214, 1215-1222, 1223-1224, 1225-1226, and 1227
 - FBI research documents leading up to the raid: SRDB 142722
 - Building 123 notes relating to FBI investigation and warrants: SRDB 127201; 127202; 127258
 - 1988 aerial survey of the RFP site: SRDB 142729. NOTE: No 1989 survey identifying radiological levels to support a criticality has been discovered or located.
- The agent discussed and provided some notes from a personal notebook/logbook of a RFP manager that are related to the RFP radiological program (SRDB 127204). Additional portions of the notebook/logbook were obtained in subsequent data capture efforts (SRDB 127203; 127207; 127208; 127209; 127210). While some notes discussed needed improvements in the radiological program and identified program confidence issues, the notes do not indicate program deficiencies that represent an inability to bound dose for the SEC-00192 evaluated class.

- The agent's response to the documented interview included the identification of a significant number of names and contacts associated with or related to the raid. Of these names, five individuals' contact information was identified and three of the five were successfully contacted and agreed to a documented interview. The three interviews are summarized below:
 - The first interview (SRDB 133401) was with the DOE Senior Site Representative at the time of the FBI raid. This individual indicated that as far as he/she was aware, the issues were associated with environmental violations, but were not associated with occupational radiological monitoring violations. The individual also discussed issues that he/she deemed hearsay, which involved personnel complaints about availability of monitoring records.
 - The second interview (SRDB 132826) was with a Rockwell and DOE Office Spokesperson. During the raid, the individual mainly dealt with the news media and providing responses regarding the raid. Other than that, the individual had no direct involvement in dealing with the raid. Part of the issue that resulted in the raid involved late night burning and operations of a waste incinerator. All the issues of which he/she was aware were environmentally-related and had no occupational radiological components. This individual did have some personal records located at his/her home and coordination is occurring to obtain copies of any pertinent files/records.
 - The third interview (SRDB 132825) was with an individual that had never been an employee or contractor at RFP. The only two associations this person had with RFP was as part of a Governor's panel to investigate unreported criticalities and serving as part of a NIOSH Health Surveillance Program. As part of his/her response, the individual reported that no indications were identified that supported the occurrence of a criticality at RFP. The individual provided a copy of the report he/she helped to develop as part of that follow-up. As part of his/her investigation, the individual looked for anomalies in personnel doses as well as flyover data. His/her investigation revealed no suspicious information and indicated that there was good continuity in the data. The Health Surveillance Program also included the assessment and revision of site personnel neutron doses.

Reviewer Response: The information provided by the FBI agent, including interview information (from the agent and other knowledgeable individuals identified by the agent) and associated documentation, support the idea that the basis of the FBI raid was RFP environmental issues. While some information collected and assessed at the time of the raid does cross over into occupational radiological issues (including the RFP manager personal log notes), nothing was discovered that supports a data falsification or destruction issue that would impact the ability to reconstruct dose for the RFP worker class being assessed as part of this white paper. The review of the flyover and MSS information indicates that there may have been support for the FBI raid from an environmental perspective. However, these documents and files provided no evidence or information that disputes the ability to bound RFP worker dose under the EEOICPA program. The claim of an unreported criticality incident at RFP was investigated from several points of view in the documents that were reviewed, as well as during the interviews of knowledgeable individuals; no supportive evidence of a criticality incident was found. NIOSH concludes that no information relating to this issue impacts the ability to reconstruct individual dose under EEOICPA.

2.3 REVIEW OF PETITIONER-IDENTIFIED RFP TECHNICAL SAFETY APPRAISAL ISSUES

As part of the follow-up issues raised by the petitioner during the Idaho Falls Board meeting, a GAO report was referenced (SRDB 22070) that, in turn, referenced an RFP Technical Safety Appraisal (TSA) (SRDB 131058). The petitioner specifically cited the following statements from the TSA:

- SRDB 131058, PDF pp. 10-11: *For example, radiation monitoring is adversely affected by poor quality instrumentation, inadequate calibration techniques, and improper use of equipment. The Radiological Health Quality Assurance Program is ineffective as evidenced by some of the preceding concerns, failure to comply with DOE-prescribed standards, and deficiencies in maintaining exposure records and tracking bioassay samples.*
- SRDB 131058, PDF p. 174: *During the past few weeks, several SAAM's were turned off without notifying either radiation monitoring or the instrument technicians. These instruments were operational when turned back on. There is no electronic method to automatically display their operational status in the monitoring office.*

- SRDB 131058, PDF p. 180: *The health physics instruments used for personnel protection do not all conform to appropriate performance requirements of applicable standards.*

Reviewer Response: The RFP TSA was reviewed for information applicable to the assessment of personnel exposure information, records, and exposure tracking. The appraisal contains information about the radiological interface between the RFP Radiological Protection personnel and other plant organizations, as described within the various sections of the report, with Section L focusing specifically on performance objectives, findings, and concerns related to Radiological Protection (SRDB 131058, PDF pp. 161-191). The concerns identified in Section L are later listed in Appendix C, *List of Concerns*, under *L. Radiological Protection* (SRDB 131058, PDF pp. 243-245).

The reviewed information was assessed to determine if the TSA findings have any substantial impact on the NIOSH dose reconstruction process. In the *Major Problem Areas* summary of the appraisal (see Bullet 1 above - SRDB 131058, PDF pp. 10-11), there are two noted deficiencies that directly relate to the primary dose reconstruction data sources for NIOSH under EEOICPA: (1) proper use of radiation monitoring equipment [dosimetry]; and (2) maintaining exposure records and tracking bioassay samples.

- The first issue arises from the observation of inadequate external dosimeter placement [on a person's body]. The example provided was truck drivers wearing dosimeters on their chest when radioactive materials were located behind them (Concern RP.5-2 - SRDB 131058, PDF pp. 171, 244). Although any determinations on the reconstruction of dose for off-site shipments/couriers is outside the scope of this RFP SEC review, the assessment of external exposure geometry issues related to this topic was performed as part of previous evaluations, specifically in the SEC-00030 RFP Evaluation Report (DSA 105419), which included issue resolutions that were incorporated into the RFP External TBD (SRDB 123074). As such, the external dose adjustment to account for exposure geometry is considered an individual dose reconstruction issue, to be handled on a case-by-case basis, and not a SEC issue.
- The second issue involves internal dosimetry/bioassay and is associated with tracking routine and special bioassays, the need for an independent audit program, and the need for a program to compare *in-vivo* and *in-vitro* results for particular employees. These issues do not speak to

a *lack* of internal dosimetry data, but rather methods to better track and compare these personnel monitoring data.

The remaining issues in the statements cited by the petitioner in Bullets 1-3 are related to field monitoring surveys and instrumentation associated with RFP operations; they are not specific to the personnel internal/external radiological monitoring data used on the NIOSH dose reconstruction project.

Based on a review of the RFP TSA in its entirety, there was no identified impact on radiological personnel monitoring data that are used to support bounding/reconstructing dose for the RFP worker class assessed in this white paper.

2.4 REVIEW OF PETITIONER-IDENTIFIED DATA FALSIFICATION ISSUES/REPORT

The petitioner-provided document (SRDB 133888) in support of data falsification issues is associated with a complaint filed by a RFP worker under the DOE Contractor Employee Protection Program, 10 C.F.R. Part 708. In his/her complaint, the worker contended that reprisals by the employer were taken after certain disclosures were made concerning possible health and safety violations and mismanagement at the RFP Site. It was found that the employer did take acts of reprisal against the employee prohibited under 10C.F.R. § 708.5, and that the employee was entitled to remedial action from the employer.

Reviewer Response: The petitioner-provided report centers on an allegation of record falsification involving mislabeling waste for shipment off site. The findings discuss allegations of potential retaliation for protected activities; however, it only contains potential impacts in terms of environmental dose. No information impacts the ability to reconstruct radiation dose with sufficient accuracy under the EEOICPA Program for the RFP worker class assessed in this report.

2.5 ADDITIONAL INFORMATION FROM RFP MANAGER PERSONAL NOTEBOOK/LOGBOOK

On January 28, 2015, the petitioner provided excerpts from the notebook/logbook of the previously-discussed RFP Manager who made notes on the radiological program, and who was present at the time of the FBI raid. The petitioner made reference to the notebook statement that the program data was “bad,” but the statement in the notebook is in reference to collecting samples but not counting them (SRDB 127210). On March 30, 2015, the petitioner provided additional excerpts from the same logbooks denoting that the logbooks indicate “questionable” operations in the Building 123 bioassay laboratory (SRDB 143317; 143318).

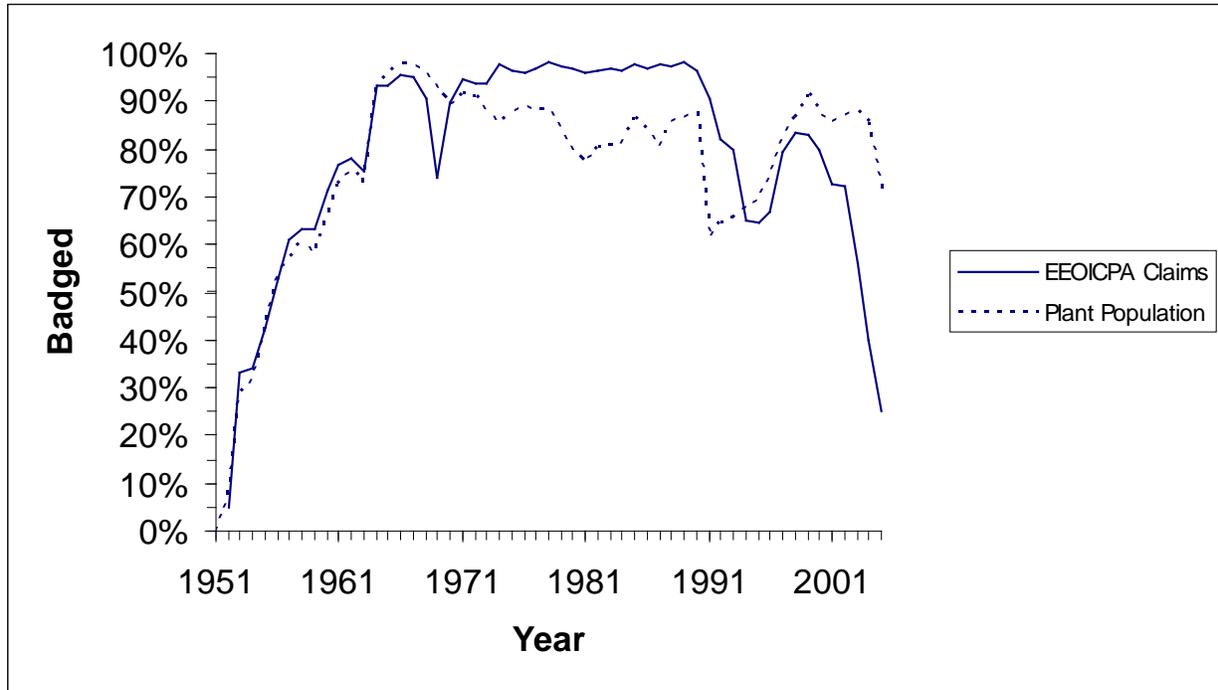
Reviewer Response: While some information collected and assessed at the time of the raid does cross over into occupational radiological issues (including the RFP manager personal log notes), nothing was discovered that supports a data falsification issue that would impact the ability to reconstruct dose for the RFP worker class assessed as part of this white paper.

3.0 ASSESSMENT OF AVAILABLE PERSONNEL RADIOLOGICAL MONITORING DATA

As part of the follow-up to the assessment performed in this white paper, NIOSH performed a review of the quantity of available personnel radiological monitoring data available at the time of this assessment. From this review, NIOSH concludes that there exists a sufficient quantity of individual external monitoring data to support the assessment of RFP personnel external doses. This conclusion remains the same as presented in the SEC-00030 RFP Evaluation Report (ER) (DSA 105419), restated in the SEC-00192 RFP ER (both Rev. 0 [DSA 117652] and Rev. 1 [DSA 119355]), and described in the RFP External TBD (SRDB 123074).

Specifically, for the post-1983 time period assessed in this paper, there exists sufficient individual external dosimetry TLD data to support reconstruction of RFP personnel external dose using the methods defined in the RFP TBD. Figure 6-1 from the SEC-00030 ER shows the number of workers badged over various years. The solid line is derived from EEOICPA claimant files; the broken line shows the results of a similar analysis performed on the RFP electronic files for the entire plant population. The difference is due to discrepancies in termination dates in the electronic files. These dates are verified as claimant files are reviewed,

providing a better understanding of the badging process as well as a more accurate individual claimant record.



Source: SEC-00030 Rocky Flats Plant ER, Figure 6-1 (DSA 105419)

Figure 6-1 from SEC-00030 ER: Percent of RFP Workers Badged for Dosimetry

For RFP personnel internal doses (the primary issues that resulted in an SEC class recommendation in Rev. 1 of the SEC-00192 RFP ER), an assessment of the quantity of available post-1983 data was performed. The assessment involved a review of the ORAUT 1983-1988 internal RFP co-worker study that was extended beyond 1988 in an extended NIOSH RFP co-worker study. The review identified the results shown in Table 1 below:

Table 1: Available RFP Internal Data (1980-1995)

Year	Total Urine Samples	Pu Urine	U Urine	Pu Fecal	Total In-Vitro Samples	Total Lung Counts
1980	5906	5628	278	-	5906	4050
1981	6349	5991	358	-	6349	4384
1982	8527	7109	1418	-	8527	4876
1983	9181	7506	1675	-	9181	6052
1984	10468	8830	1638	-	10468	6777
1985	10381	8767	1614	-	10381	5922
1986	7075	5893	1182	-	7075	5460
1987	3979	3429	550	-	3979	4966
1988	4808	4415	393	-	4808	5735
1989	6977	4777	2200	78	7055	3618
1990	5172	4168	1004	69	5241	1799
1991	495	483	12	225	720	638
1992	960	762	198	758	1718	553
1993	1550	1197	353	368	1918	663
1994	3325	2722	603	770	4095	892
1995	2106	1688	418	69	2175	239

Information on the variances in numbers of bioassay samples, as described in the SEC-00030 RFP ER (p. 15), notes that there was a significant increase in employment in 1984 (to a peak of 5,990 in 1984), and that plutonium processing ceased in 1990. While no clear correlation can be made for 1985-1986 and 1988-1989, the 1985 date does correspond to the incorporation of new air-sample filter media in the air-monitoring program, and the 1989 date corresponds to EG&G taking over the site and the occurrence of the FBI/EPA raid at RFP.

Based on this information, and the information provided in the preceding sections of this assessment, NIOSH finds that there is no issue associated with the FBI raid, or issues relating to data falsification or invalidation that impact the post-1983 data and thus preclude individual dose reconstructions with sufficient accuracy under EEOICPA.

4.0 GENERAL SUMMARY AND CONCLUSIONS

This section provides a general summary of the sequence of topics addressed in this paper and NIOSH's conclusions:

- NIOSH reviewed the interviewee allegation relevant to data falsification and/or data invalidation in Building 123. The interviewee made statements about the inadequacy of fume hoods, and the improper handling and/or preparation of environmental, bioassay, fecal coliform, and stack samples. From a radiological perspective, NIOSH finds no scientific basis for concluding that the issues raised regarding environmental samples would compromise radiological count results, nor does the reviewed information corroborate a link between the environmental and occupational radiological programs. Nevertheless, NIOSH interviewed four individuals with potential related knowledge or information who confirmed that the focus of the assessment and the FBI raid was very specific to environmental impacts and monitoring. There is no direct translation of the identified environmental findings/deficiencies into findings/deficiencies in the worker-monitoring program, and no such formal allegations were made.
- NIOSH reviewed *An Insider's View of Rocky Flats: Urban Myths Debunked*. The author implies that the FBI raid found no issues with worker protection or the worker monitoring program; the only violation cited for RFP was an environmental release. Based on the DOE Special Assessment report, the focus on the assessment was very specific to environmental impacts and monitoring. Although the report discusses data QA and validation issues with the analytical laboratories in Building 881 and Building 123, NIOSH concludes that there were no situations identified where falsification or invalidation of data would impact the ability to perform dose reconstruction under EEOICPA.
- RFP site records managers provided access to additional pertinent documents that support this assessment, including the complete Grand Jury Report; RFP Occupational Radiological Control Program procedures; and examples of post-raid air sampling, bioassay monitoring, contamination monitoring, nasal swab, and instrument operations procedures and manuals. Based on its review, NIOSH concludes that the information does not affect the ability to adequately reconstruct individual doses under EEOICPA. There were no identified situations that posed an imminent threat to RFP workers, the public, or the surrounding environment. As noted in the documentation reviewed relating to the FBI raid, the raid findings and the

resulting charges against RFP-Rockwell were specific to environmental RCRA and Clean Water Act Laws and the impact to the environment. Based on the NIOSH review of the raid findings/charges, there were no identified issues from a radiological occupational or radiological environmental data perspective that would impact the ability to bound dose for the post-1983 portion of the class being assessed in this white paper. This white paper is part of the SEC review process. Specifically, it is part of the SEC-00192 RFP ER follow-up assessment of RFP data issues and any impact they may have on the ability to perform sufficiently accurate EEOICPA dose reconstructions. The assessment of any potential impacts of the FBI raid findings on the RFP Environmental TBD will be performed separately as part of the (non-SEC) reviews of the NIOSH RFP Environmental TBD.

- NIOSH continued to review RFP issues and potential resolutions for the period after 1983. These issues included the evaluation of the FBI raid and data falsification issues, as well as the issues raised by the RFP Working Group and petitioner that fell within the expanded evaluation scope. To this end, a December 2013 data capture and interview trip was conducted. One individual provided information regarding his/her personal involvement in shredding documents. NIOSH concludes that while the documents being destroyed could have been some kind of field surveys, it does not appear that those surveys have an impact on NIOSH's ability to bound or reconstruct dose for the class, as long as the personnel monitoring data exist. Based on a review of some of the files that were provided as examples of documents that the interviewee believed were destroyed, NIOSH found that the records did exist in the associated personnel files in NOCTS; thus, those files were not destroyed.

A second interviewee raised the issue of dosimetry technicians writing down dose rate information in pencil, which would allow RFP management to later direct changes to keep the production going. Based on NIOSH Health Physicist professional judgement and field experience, the issue of "pencil-in" information appears to be referring to radiological field survey records that directly relate to on-going production operations. The only dosimetry information that may be included in such field surveys would be from direct-reading dosimeters or personal ion chambers, which are used for comparison purposes in EEOICPA dose reconstruction; the primary and most impactful source of radiological information for individual dose reconstruction is the individual TLD dosimetry and bioassay information. TLD and bioassay analyses are performed in a laboratory, and not documented in the field.

The second interviewee also relayed concerns about bioassay sample analysis results (false positives and [statistical] variations); bioassay sample handling and processing; personnel contamination and contamination incidents; and issues related to tritium bubblers, Np, Mg-Th Alloy, and the Criticality Lab. NIOSH concludes that the concerns about bioassay do not raise any issues that invalidate the use of personnel bioassay data in the performance of dose reconstructions under EEOICPA. The NIOSH dose reconstruction process accounts for the potential for missed doses and incorporates methods that are favorable to the claimant. Contamination incident and survey data are used to supplement the personnel monitoring data in the performance of dose reconstructions under EEOICPA; personnel monitoring data are considered the primary data sources for the process. All of the issues concerning tritium bubblers, Np, Mg-Th Alloy, and the Criticality Lab are outside the scope of this paper and are addressed in other topic-specific papers.

- NIOSH interviewed two of five potential interviewees with information identified from Board Working Group meetings, petitioner information, and individual interviews. The remaining three either did not agree to be interviewed or did not return messages requesting an interview. The first interviewee confirmed that Environmental Radiological Program changes did occur as a result of the FBI raid, and brought up concerns associated with personal radiological monitoring records and the RFP radiological monitoring program, which documented varying positive and negative bioassay results in an individual's dose records. NIOSH concludes that no information provided during this interview supported the allegation of document destruction activities at RFP or impacted the ability to bound dose for the portion of the class of RFP workers being assessed by this white paper.

The second interviewee was the lead FBI agent involved in the 1989 FBI raid, who provided a significant number of papers and documents related to the raid. Many of these documents are awaiting release by the applicable agencies. The agent contended that there was an additional August 1989 aerial Multispectral Scanner Survey (MSS) performed at RFP in addition to the one performed in June/July of 1989, and that the flyover data indicate the presence of the isotopes Cs-137 and Sr-90, which is used to imply that an unreported criticality occurred. NIOSH could locate neither the August 1989 flyover survey nor evidence supporting a criticality event. NIOSH interviewed other individuals to assess the criticality claim and could find no corroborating evidence. The information provided by the FBI agent supports the idea that the basis of the FBI raid was environmental issues. NIOSH

concludes that the interview, documents, and files provide no evidence or information that disputes the ability to bound RFP worker dose under the EEOICPA program.

- NIOSH reviewed the entire RFP Technical Safety Appraisal (TSA) after the petitioner cited three statements concerning poor-quality instrumentation, standards, and record-tracking. In the *Major Problem Areas* summary of the appraisal, there are two noted deficiencies that directly relate to the primary dose reconstruction data sources for NIOSH under EEOICPA: (1) proper use of radiation monitoring equipment [dosimetry]; and (2) maintaining exposure records and tracking bioassay samples. NIOSH concludes that any determinations on the reconstruction of dose for off-site shipments/couriers is outside the scope of this RFP SEC review; however, the assessment of external exposure geometry issues related to this topic was performed as part of previous evaluations, specifically in the SEC-00030 RFP Evaluation Report, which included issue resolutions that were incorporated into the RFP External TBD. As such, the external dose adjustment to account for exposure geometry is considered an individual dose reconstruction issue, to be handled on a case-by-case basis, and not a SEC issue.

The second issue involves internal dosimetry/bioassay and is associated with tracking routine and special bioassays, the need for an independent audit program, and the need for a program to compare *in-vivo* and *in-vitro* results for particular employees. NIOSH concludes that these issues do not speak to a *lack* of internal dosimetry data, but rather methods to better track and compare these personnel monitoring data. Based on its review of the RFP TSA in its entirety, NIOSH concludes that there was no identified impact on radiological personnel monitoring data that are used to support bounding/reconstructing dose for the RFP worker class assessed in this white paper.

- NIOSH reviewed a petitioner-provided report centering on an allegation of record falsification involving mislabeling waste for shipment off site. The findings discuss allegations of potential retaliation for protected activities; however, it only contains potential impacts in terms of environmental dose. NIOSH concludes that none of this information impacts the ability to reconstruct radiation dose with sufficient accuracy under the EEOICPA Program for the RFP worker class assessed in this white paper.

- The petitioner provided excerpts from the notebook/logbook of an RFP Manager who made notes on the radiological program, and who was present at the time of the FBI raid. NIOSH concludes that while some information collected and assessed at the time of the raid does cross over into occupational radiological issues, nothing was discovered that supports a data falsification issue that would impact the ability to reconstruct dose for the RFP worker class assessed in this white paper.
- NIOSH performed a review of the quantity of available personnel radiological monitoring data available at the time of this assessment. NIOSH concludes that there exists a sufficient quantity of individual external monitoring data to support the assessment of RFP personnel external doses. This conclusion remains the same as presented in the SEC-00030 RFP Evaluation Report (ER), restated in the SEC-00192 RFP ER (both Rev. 0 and Rev. 1), and described in the RFP External TBD. Based on this information, and the information provided in the preceding sections of this assessment, NIOSH finds that there is no issue associated with the FBI raid, or issues relating to data falsification or invalidation that impact the post-1983 data and thus preclude individual dose reconstructions with sufficient accuracy under EEOICPA.