

OES 2024-02-P1

September 2024

Managing an Accident Investigation Board Part 1 of 3: Lessons from the Board Members

Introduction

This Operating Experience Summary (OES) is the first of a three-part series titled “*Managing an Accident Investigation Board*.” It provides information that supports field organizations in successfully managing Department of Energy (DOE) Accident Investigation Board (AIB) responsibilities. AIB guidance and training exists within the Department and is routinely provided to AIB candidates. However, due to the immediacy and high level of rigor that is required by the process and the low frequency in which AIBs are convened, subject matter experts and managers called to support an investigation can benefit from continued awareness about potential process pitfalls and good practices in executing their responsibilities. This first part of the OES series considers AIB lessons learned from board members’ perspective. The other two parts focus on the roles and perspectives of the AIB Chairpersons and the federal site offices.

Background

From December of 2022 to August 2023, three serious accidents occurred which met the criteria of *DOE O 225.1B, Accident Investigations*. AIBs were chartered by the Office of Science (SC) for the SLAC National Accelerator Laboratory Electrical Shock Event (December 27, 2022), the Fermi National Accelerator Laboratory Construction Injury Event (May 25, 2023), and the Oak Ridge Reservation Management Tree Felling Fatality Event (August 11, 2023). The experience of chartering and executing these AIBs provides a rich collection of lessons that can benefit other organizations in performing this critical task and ensuring high quality investigation outcomes. In the spirit of being a learning organization, the SC Office of the Deputy Director for Operations and the Office of Environment, Health, Safety and Security (EHSS) Accident Prevention and Investigation Program (APiP) Manager collaborated to develop Lessons Learned from these three recent event investigations and share them with the DOE Complex.

AIB Members Operating Experience

1. Board members should receive an ***orientation of the AIB Process from EHSS***.

Lessons Learned and/or Good Practices Identified

- a. Although many Board members may have been formally trained in accident investigations or causal analysis, this training may have occurred long ago or had been taken outside of DOE. The AIB process uses specific terminology and processes, and all Board Members need to be actively involved in identifying and analyzing the facts. Providing a clear overview of the key process steps and expectations as the outset will enhance the Board’s

AIB Members Operating Experience

Lessons Learned and/or Good Practices Identified

- effectiveness and support a more effective investigation and Report.
- b. Even though a qualified DOE Accident Investigator is a requirement of the Board, and the *DOE-HDBK-1208-2012 Accident and Operational Safety Analysis Volume* is available for review for all AIB members, there are significant benefits in having an orientation or presentation explaining the AIB process to the entire Board up front. Any questions or concerns on the overall process can be addressed during this orientation. EHSS staff is available to provide this orientation.
 - c. Everyone on the Board needs to fully understand the time commitment required to serve on an AIB. Members of the three most recent AIBs spent two weeks on site and over two months meeting virtually.
2. Have the Board Subject Matter Expert (SME), provide all members with an **overview of the system(s)** involved in the accident (e.g., High Voltage Electricity, work at elevation, radiation, or chemical work)
 - a. Have the Board member assigned as the SME provide an overview of the system(s) involved in the accident, including how it is normally expected to operate under the conditions in which it was defined, and standard safety measures normally invoked during the operation and maintenance phases. This allows Board members to look clearly and objectively at the safety management systems put in place and within which the system or process operates.
 3. Establish a **document storage area and e-file structure system** early so requested documents can be easily and quickly located.
 - a. The need for a central, structured electronic storage area is key to reducing time loss and frustration associated with managing documents. THIS ACTION WILL SAVE EVERY MEMBER OF THE BOARD VALUABLE TIME.
 - b. The Establishment of an e-file system that is organized, labeled, and intuitively easy to navigate, maintains document control and allows the Board to work efficiently. If assigned, the administrative assistant to the Board should do this immediately. In the absence of an administrative assistant, assign a Board member to oversee what information has been asked for, when it came in, and where it is contained on the shared document platform. This is critical as the volume of information can easily become overwhelming to manage.
 - c. Save documents with associated titles that make sense and are easily identifiable (e.g., save a document originally titled as "SMCSO Case 22-10313", as "Police Report").
 - d. Understand what firewall or security restrictions may be in place for the Site and the challenges associated with those restrictions. It is possible that timely downloading and/or sharing of documents is hindered by IT security

AIB Members Operating Experience

Lessons Learned and/or Good Practices Identified

- measures. Ensure all Board members can utilize the dedicated collaboration app selected by the Chair.
- e. SharePoint or Teams were the most effective document sharing tools used during recent AIBs.
4. Board members need **dedicated, independent time** for writing, as well as breaks (when appropriate) on site.
- a. It is important that every Board member (especially the Chair) is granted independent periods for work and breaks. Time together as a Board is crucial, however, it is important to consider the following:
- 1) While on-site, working 6-7 days a week is taxing for all Board members. Take breaks to allow for time to step away from the accident and associated cognitive load and emotional exhaustion.
 - 2) Make time for independent writing. It can be very challenging to compose thoughts and write with multiple conversations and distractions present. Consider having dedicated time for writing assignments, and dedicated time to gather as a Board for any required discussions, updates, or analysis.
5. **DOE Legal Counsel** is a great resource to the entire Board.
- a. Board investigations often touch on legal issues, making the ability to engage with counsel important to the investigation. The Board should meet with DOE Legal Counsel shortly after convening and have the ability to consult with counsel throughout the process to address legal concerns that may arise.
- b. DOE legal counsel can provide the Board with assistance in navigating the potential need to communicate with non-government private attorneys.
6. Fostering mutual respect during the **Quality Review** Process.
- a. The quality review process presents challenges for both Board members and the Quality Review Team (QRT). While Board members spend months investigating, compiling facts, and analyzing enormous amounts of data and evidence to produce a report, the QRT has roughly 10 days to review the report for any potential gaps in the analysis and ensure the report can provide value years down the road.
- b. Having clear roles, responsibilities, goals, and boundaries defined for both the Board and QRT can help limit associated anxieties and miscommunications. The QRT Lead and all QRT members can support empowering the Board by seeking to frame all feedback and suggestions in a way which recognizes the Board's significant efforts and understanding of the event. Though difficult, Board members need to remember that QRT comments are not meant to diminish any of the AIB's efforts, but to provide

AIB Members Operating Experience

Lessons Learned and/or Good Practices Identified

recommendations that bolster the report and ensure that future readers can understand and learn from it. The AIB and the Appointing Official are ultimately responsible for the content and approval of the final report.

7. **The five stages of Team Development** are alive and well.

a. Psychologist Bruce Tuckman came up with the phrase “forming, storming, norming, performing, and adjourning” back in 1965. This concept remains with us today and can be very real to any AIB. Board members need to remember that some level of intensity and discord during conversations is normal and may differ depending on Board composition. Regardless, Board members who understand this development process of any Team will be more capable of being respectful and thoughtful throughout and are better prepared to navigate through times of professional disagreements.

8. **Meeting virtually can be expected** by anyone assigned to an AIB.

a. Meeting on-site where the accident occurred will be required. However, all Board members should expect to conduct a portion of the investigation remotely. The last three boards have proven that conducting the causal analysis, developing Conclusions (CONs) and Judgements of Needs (JONs), and writing the report can be done remotely.

b. Working remotely on an AIB can be time consuming. Board members need to understand they are still assigned to the AIB even though they may be working off-site. Having a dedicated space to enable meeting virtually without distractions or disruptions is crucial for every board member to be successful.

9. An **Administrative Assistant** can provide immeasurable value to an AIB.

a. It is recommended the Board have an assigned administrative assistant to support effective board functioning, particularly dedicated to storing information and communicating where information is located.

b. Having an Administrative Assistant (preferably one who is also a Technical Writer/Editor) available full time to the Board should always be considered. They can help with relieving the strain associated with drafting the report outline, compiling sections of the report written by multiple authors, providing consistency, revising and editing, resolving inherent grammar/syntax errors, and ensuring the report flows in a readable fashion, amongst many other benefits provided.

10. **Information collected from interviews.**

a. Consideration should be given to various methods available for recording and transcribing interviews (e.g., electronic or software recording capabilities). If authorized and with full consent of the interviewees, this provides

AIB Members Operating Experience

Lessons Learned and/or Good Practices Identified

Board members a higher level of accuracy and understanding of the human testimony provided.

- b. The AIB should always consider sending recordings or transcriptions of interview statements back to the interviewees to verify the accuracy of information captured. This provides interviewees the opportunity to ensure that information was accurately captured; clarify any information provided; and add relevant details that may be missing. Ultimately, this action provides for a higher level of trust between the interviewees and the Board.

The Office of Environment, Health, Safety and Security (EHSS), Office of ES&H Reporting and Analysis publishes OES articles to promote safety throughout the DOE Complex through the exchange of lessons-learned information among DOE facilities and program offices.

Please contact Jason Brustad at (202)384-5506 or Jason.Brustad@hq.doe.gov for questions regarding this OE Summary.

OES Series: Managing an Accident Investigation Board (AIB)

This OES is part of a series of articles focused on recent operating experience and recommended practices in the managing an AIB under DOE O 225.1A. The series includes the following three parts:

- Part 1: *Lessons for Board Members (this OES document)*
- Part 2: *Lessons from the Site Office*
- Part 3: *Lessons for the Chair*