ATTACHMENT 1

TECRO-AIT Technical Cooperation Program Descriptions

The TECRO-AIT Technical Cooperation Program descriptions involves training/refresher training, and other activities, including but not limited to, joint research and development projects, corroboration on scientific elements of accident investigation and investigation techniques, exchanging technical information to the extent permitted by law, exchanging scientists and technical experts, convening seminars and meetings, training participants, and engaging in other forms of cooperation in the following sample areas of transportation accident investigations and its technologies, as many be mutually agreed:

1. **The Mission of AIT's Designated Representative, the NTSB, and its Operating Rules and Legal Authority**

   - ☐ The NTSB mission
   - ☐ The NTSB and other federal agencies
   - ☐ Independent organization-Independent Safety Board Act of 1975
   - ☐ Rules of authority
   - ☐ Regulations and authorizations

2. **Accident Site Management**

   - ☐ Securing the site
   - ☐ Site safety and safety equipment
   - ☐ Documentation
   - ☐ Wreckage recovery
   - ☐ Transportation and storage of wreckage
   - ☐ Examination

3. **Conducting an Accident Investigation**

   I: Preparation and Initiation
   II: On-Scene Arrival and Documentation
   III: On-Scene Wrap-up and Follow-up
   IV: Follow-up Investigations and Reports

   Conducting an Accident Investigation concerns the duties of an investigator with emphasis on the importance of having a good sound working knowledge of aviation and factor that affect operating as a whole. AIT's Designated Representative, NTSB, includes the principles developed by the International Civil Aviation Organization (ICAO) in its Manual of Aircraft Accident Investigations (1970). ICAO stresses technical skill, perseverance, and logic as important tools of the professional accident investigator.

   - ☐ Attributes of the ideal investigator
   - ☐ Preparing to be on-call
   - ☐ Initial notification and coordination
   - ☐ Getting there

- ☐ Arrival on-scene
- ☐ The on-scene investigation phase
- ☐ Tools of the accident investigator
- ☐ Documentation
- ☐ Field tests
- ☐ On-scene wrap-up
- ☐ The follow-up investigation
- ☐ Preparing reports

4. Assisting Family Members

The Aviation Disaster Family Assistance Act of 1996 outlines specific responsibilities for the NTSB and the airlines in dealing with the families of the victims of an airline disaster and NTSB addresses improved ways to address the needs of families immediately following an aviation disaster.

- ☐ The Aviation Disaster Family Assistance Act of 1996
- ☐ Victim issues
- ☐ Stress
- ☐ Describe ways combat job stress
- ☐ Trauma and post trauma response
- ☐ Self-care in mass casualty events

5. Major U.S. Investigations

- ☐ Case studies are used to understand the role of the NTSB at a major accident site; the application of NTSB investigative processes; and how the safety and regulatory systems work together to achieve a safety goal
- ☐ Basic NTSB Organization
- ☐ Major Domestic Aircraft Accident Investigations processes and procedures used
- ☐ Parties to the investigation
- ☐ The Role of the Federal Aviation Administration
- ☐ Case Studies

6. Media Relations

AIT's Designated Representative, NTSB, explains various techniques for balancing the needs of the media to have real time information with the need of the NTSB to perform a thorough investigation and reach sound conclusions as to the probable cause of an accident.

- ☐ Strategies
- ☐ NTSB Board Members as spokesperson
- ☐ Potential parties
- ☐ Common threads (good job in communicating)
- ☐ Common threads (poor job in communicating)

- ☐ Four-point formula
- ☐ How do you leave a news briefing?
- ☐ Sample questions
- ☐ Common message mistakes

7. Weather-Related Accidents

AIT's Designated Representative, NTSB, explains how to gather publicly available weather data while investigating accidents, and how weather data can be used in investigations. Real-world examples of past investigations are used to illustrate the importance of weather data.

- ☐ Accident statistics
- ☐ Various types of weather-related accidents (includes hazardous weather such as wing shear, turbulence and icing)
- ☐ NTSB meteorology and procedures
- ☐ Examples
- ☐ Weather resources for accident investigations

8. Recorders

AIT's Designated Representative, NTSB, explains the types and capabilities of flight recorders and the various types of recorders used in aviation.

- ☐ History of recorder
- ☐ Flight data recorders (FDR)
- ☐ Animations
- ☐ Cockpit voice recorder (CVR)
- ☐ Policies and procedures
- ☐ What's new in the recorders field?

9. Aircraft Systems & Party Perspective

AIT's Designated Representative, NTSB, explains the perspective of a party participant to an accident investigation and other party participants discuss the working relationship with the NTSB in an investigation.

- ☐ What kinds of expertise do third parties bring to an investigation and what do they contribute
- ☐ What parties to an investigation get from the investigation

10. Air Traffic Control

AIT's Designated Representative, NTSB, discusses the role and capabilities of Air Traffic Control in aviation accidents.

- ☐ Introduction to Air Traffic Control (ATC)
- ☐ Use of ATC in investigations
- ☐ What information is available from ATC
- ☐ Services involving an ATC specialist
- ☐ Examples where ATC was a factor in accidents

11. **Fire-Related Accidents w/Exercise**

AIT's Designated Representative, NTSB, presents the principles of and how to apply investigative methodology to fire investigations.

- ☐ Understand the combustion process
- ☐ Learn the definitions of fires and explosions
- ☐ Investigating fires; what we look for
- ☐ Case study of in-flight fire

12. **Fracture Recognition**

AIT's Designated Representative, NTSB, presents a practical background in fracture and structural failure so that investigators are better equipped to determine if a fracture or structural event precipitated an accident. These principles can be applied in mid-air collisions cases and in-flight breakups.

- ☐ The types of loading to which a structure is subjected
- ☐ The role of structures in transferring loads into stress
- ☐ The ways in which materials fracture and structures fail
- ☐ Material characteristics and how they affect fracture characteristics
- ☐ Fracture types
- ☐ How to determine the initial point of a structural failure
- ☐ A description of composite failures
- ☐ The capabilities of NTSB's Materials Laboratory

13. **Reciprocating Engines/Propellers**

AIT's Designated Representative, NTSB, presents an overview of various aspects of propeller-driven aircraft to include reciprocating engines and propellers.

- ☐ General types of propellers
- ☐ Single-engine propellers
- ☐ Multi-engine propellers
- ☐ Turbine engine propellers
- ☐ Forces to actuate propellers
- ☐ Propeller stresses
- ☐ Reciprocating engine types
- ☐ Internal working and failures of reciprocating engines
- ☐ What to look in reciprocating engines at the scene

14. **Flight Crew Operating Factors**

AIT's Designated Representative, NTSB, presents factors that NTSB Operations Investigators examine when investigating an accident and discusses the use if animations in identifying issues where critical operations failure were indentified.

- ☐ What do Operations investigators do?
- ☐ What are their sources of information?

☐What more is needed in the industry to help operations investigations?
☐Examples and case studies of actual investigations; animations

15. Survival Factors & Airports

Survival factors rarely help determine the probable cause of an accident. However, AIT's Designated Representative, NTSB, looks at the cause of injury and explains injuries in the context of an accident. Many of the improvements seen in occupant safety are the result of survival factor investigations.

☐Background and expertise
☐What NTSB looks for in a Survival Factors investigation
☐Airports, Emergency Response, biomechanics
☐Case studies

16. Aircraft Performance

Instruction includes case studies to help investigators determine various aspects of aircraft performance and how that information can be used during an aircraft accident investigation.

☐Defining and measuring the motion of an airplane
☐How to determine speed using time and distance
☐Trajectories
☐Icing
☐Wet/contaminant runway performance and investigative techniques
☐Wake turbulence
☐What we look at/for on-scene to give us more information
☐Practical exercises

17. Investigating Reason

Various logistical tools, such as fault-tree analyses, are used to assist the investigative process.

☐The needs and challenges of an accident investigation
☐Helpful tools and Fault-tree analyses
☐Faults versus Failures
☐Case Study

18. Major Foreign Investigations

AIT's Designated Representative, NTSB, discusses its role at a major foreign accident site.

☐ICAO and NTSB Operations within that framework
☐Annex 13 of the International Civil Aviation Convention
☐Basic differences when working outside the United States
☐U.S. Department of Stat involvement
☐Scenarios and examples of Foreign Investigations

19. Cognitive Interviewing

Interviewing witnesses at an accident scene using techniques of Cognitive Interviewing are important to proper investigations.

- ☐ Importance of Interviewing
- ☐ Current techniques
- ☐ Different interviewing styles
- ☐ Current/typical approach to interviewing
- ☐ Typical interviewing errors
- ☐ Component psychological processes of effective interviewing

20. In-Flight Breakups and Mid-Air Collisions w/Exercise

AIT's Designated Representative, NTSB, explains what to look for in mid-air collisions and in-flight breakups while in the field and how to develop an understanding of how to investigate these types of accidents.

- ☐ Sources of information
- ☐ Using physical evidence
- ☐ Locating and measuring valid scratch marks
- ☐ Determining collision and convergence angles
- ☐ Propeller slashes
- ☐ In-flight breakups
- ☐ On-scene in flight breakup exercise

21. Turbine Engines

Case studies are used to discuss the uses and types of turbine engines to investigate accidents involving turbine engines.

- ☐ Introduction to the turbine engine
- ☐ Types of investigations involving turbine engines
- ☐ On-site engine examination
- ☐ Types of failures–videos
- ☐ Bird strikes
- ☐ Case Studies
- ☐ JT-8D examination

22. Tutorial

Group exercises are used in which an appointed Chief Investigator must take charge of a staged accident and use the NTSB group and party system to gather information and apply the principles and techniques NTSB uses to complete the investigation.

- ☐ Setup of Working Groups/Parties–Group Chairs
- ☐ Factual information gathering
- ☐ Daily reports

23. Human Factors and Performance

AIT's Designated Representative, NTSB, explains how to conduct a human factors investigation, as well as how to evaluate human factor findings.

- ☐ General topics of a human factors investigation
- ☐ Special topics of a human factors investigation
- ☐ Evaluating human factors findings

24. Biomedical Issues in Accident Investigation

Case studies are used to teach the importance of biomedical issues as they relate to an accident investigation.

- ☐ Purpose of evaluating biomedical issues
- ☐ Factual tools
- ☐ Analytical resources
- ☐ Case studies

25. Safety Recommendations

AIT's Designated Representative, NTSB, explains its safety recommendation process.

- ☐ The importance of safety recommendations
- ☐ The NTSB process of safety recommendations
- ☐ Emergency recommendations
- ☐ Classifications of safety recommendations

26. Board Meeting & Public Hearings

AIT's Designated Representative, NTSB, explains the importance of and differences between public hearings and Board meetings and the advantages and limitations of each venue.

- ☐ Public hearing - preparation and products
- ☐ Board meetings - preparation and products