National Aeronautics and
Space Administration

Office of Inspector General
Washington, DC 20546-0001

MAY 0 9 2006

TO: Associate Administrator for Space Operations

FROM: Assistant Inspector General for Auditing

SUBJECT: Final Memorandum on the Audit of NASA's Response to the Columbia Accident Investigation Board Recommendation Concerning Mission Management Team Training (Report No. IG-06-011; Assignment No. A-04-014)

The Office of Inspector General (OIG) audited NASA's actions in responding to Columbia Accident Investigation Board (CAIB) Recommendation 6.3-1, "Training." The recommendation required NASA to implement an expanded training program for the Space Shuttle Program (SSP) Mission Management Team (MMT) in which the MMT would face potential crew and vehicle safety contingencies beyond launch and ascent.

Our audit objectives were to determine (1) whether NASA's Implementation Plan for Space Shuttle Return to Flight and Beyond (Implementation Plan) adequately addressed all MMT training issues raised by the CAIB and contained realistic and achievable milestones, (2) NASA had an effective strategy for implementing changes to the MMT processes and training, and (3) NASA adequately coordinated the implementation of the MMT training program with all SSP contractors. We also monitored the performance of the MMT during the first return-to-flight mission to ensure that the MMT applied the knowledge gained from the expanded training program. (See Enclosure 1 for details on the audit scope and methodology.)

Executive Summary

NASA took appropriate action in response to CAIB Recommendation 6.3-1 by developing and implementing an expanded training program. Because of the actions taken or planned by the SSP, the CAIB closed the recommendation in June 2005. Based on our review of the MMT training plan, our attendance at the revised MMT training classes and simulations, and our observation of the MMT process during the first return-to-flight mission, we agree that NASA adequately addressed all MMT training issues raised by the CAIB.

MMT Background

The MMT is a program-level oversight group that functions during the launch and flight of each Space Shuttle. The Chair of the MMT is the Deputy Manager, SSP, who reports

directly to the SSP Manager. The Chair leads MMT activities throughout the mission, interfaces between the control teams for launch and flight operations and senior NASA management, and conducts a daily launch countdown status briefing for the public. MMT members include the SSP directors and managers; the Director, Space Shuttle Safety and Mission Assurance; the Directors of Engineering at Johnson Space Center and Marshall Space Flight Center; the Commander, Department of Defense Manned Spaceflight; and SSP contractors. The MMT also includes members independent of the SSP, who provide the MMT advice and counsel. Those members are the Director, NASA Engineering and Safety Center, and the Directors of the Center Safety and Mission Assurance Offices for Johnson Space Center, Kennedy Space Center, and the Marshall Space Flight Center.

MMT responsibilities are defined in National Space Transportation System (NSTS) 07700, Volume II, Book 2, Revision D, "Space Shuttle Program Structure and Responsibilities," August 15, 1996, and Volume VIII, Revision E, "Space Shuttle Operations," February 24, 1999. Launch responsibilities are carried out at Kennedy Space Center and include approving flight readiness reviews and changes to NASA's established launch or flight rules, as well as participating in weather evaluations that must be completed before launch approval. The MMT also resolves problems arising during launch preparations and countdown that are outside the decision-making authority of the Launch Director and gives final approval for the launch "Go/No-Go" decision. Once the Shuttle is successfully launched, the MMT travels to the Johnson Space Center, where it carries out its flight responsibilities, which include resolving anomalies and issues that fall outside NASA's approved flight procedures. The MMT meets daily until the Shuttle lands and the crew exits the vehicle.

CAIB Recommendation 6.3-1

The CAIB issued Recommendation 6.3-1 after reviewing the MMT decisions made during Space Shuttle Columbia's final flight; specifically, those decisions concerning the damage from external tank foam debris that ultimately led to Columbia's destruction. The CAIB report stated that the MMT decisions concerning the foam debris damage reflected a lack of effective leadership, flawed analysis, a low level of concern, and a lack of clear communication. The report stated that the MMT did not

- actively direct the efforts of the debris assessment team;
- engage in scenarios or consult with debris assessment team leaders about the team's assumptions, uncertainties, progress, or interim results; or
- treat the debris damage as an issue that required operational action by mission control.

The report concluded that management failed to make use of the wide range of expertise and opinion to achieve the best answer to the question of whether the debris strike was a

"safety-of-flight" concern. Recommendation 6.3-1 addressed this management issue, specifically stating that NASA should

> [i]mplement an expanded training program in which the Mission Management Team faces potential crew and vehicle safety contingencies beyond launch and ascent. These contingencies should involve potential loss of Shuttle or crew, contain numerous uncertainties and unknowns, and require the Mission Management Team to assemble and interact with support organizations across NASA/Contractor lines and in various locations.

Recommendation 6.3-1 was 1 of 15 recommendations that NASA was required to address before the Shuttle could return to flight on July 26, 2005.

MMT Training Issues Adequately Addressed

NASA took appropriate action in response to CAIB Recommendation 6.3-1 by developing and implementing an expanded training program that addressed the MMT training issues raised by the CAIB. The Implementation Plan was used to document the revisions made to the training program, and each revision was assigned a milestone date that we believe was reasonable based on the extent of the revisions.

Expanded MMT Training Program. The MMT training program was expanded considerably from the pre-CAIB requirements that members be familiar with SSP documents, such as the MMT charter and NSTS 07700, and attend the Agency Program Contingency Simulation[1] held every 18 months. Although additional simulations were conducted at certain times—for example, during prelaunch activities—MMT members were not required to attend. The CAIB report stated that the MMT was primarily trained and focused to handle unexpected situations arising during the prelaunch and launch phases of a Shuttle mission and not for situations arising in-flight. The CAIB also stated that the MMT members did not actively seek out or acknowledge potential concerns and issues raised by support teams and working groups that worked with the MMT.

To expand the MMT training program, the SSP took the following steps:

- Formalized the MMT training program in SSP Directive 150B, April 21, 2005. The directive defines MMT membership and responsibilities and lists the frequency and protocol for launch meetings. It also establishes formal processes for reviewing findings from ascent and on-orbit imagery analyses and for resolving mission anomalies. Various groups were asked to comment on the draft directive, including astronauts, Space Shuttle managers, and human resources specialists.

- Developed 13 simulations and 6 classroom training sessions that covered such topics as crew resource management, communications, critical thinking, and decisionmaking. To specifically address the CAIB requirements, 13 of the

[1] The Program Contingency Simulation exercises the Agency Contingency Action Plan, which is used to manage mishap and contingency situations until a formal mishap investigation board can be established.

simulations and training classes included contingencies in which the MMT members were required to make critical decisions concerning crew and vehicle safety.

- Initiated minimum requirements for MMT membership, to include that members be certified before they can actively participate in a Space Shuttle mission. To become initially certified, MMT members must read designated SSP documentation, such as the NSTS 07700, the CAIB report, and the Center Contingency Action Plan, and attend at least two simulations, three training courses, and five overview courses or lectures. On an annual basis, all certified MMT members must read two approved management improvement books and attend two simulations to maintain their certification.

We reviewed SSP Directive 150B and the course material for all of the newly established simulations and training classes. We attended 11 of the simulations and all 6 of the training sessions that were conducted prior to the STS-114 launch. When we identified problems or had suggestions to improve the lectures and simulations, we immediately notified SSP personnel who took corrective action, if necessary. For example, we suggested that the MMT training be conducted in an area dedicated and configured to support the MMT. In response to this suggestion, an MMT Command Center was created at Johnson Space Center. During the MMT's STS-114 training, we made 79 comments and recommendations to the program to improve the training process (see Enclosure 2). The comments and suggestions ranged from very minor points, such as the need to reduce distractions in the training environment, to major points, such as the need to include actual Columbia-specific case studies in the Critical Decision Making course.

We consider that the expanded MMT training program and MMT certification requirements meet the intent of CAIB Recommendation 6.3-1.

Use of the Implementation Plan. The Implementation Plan was used to document the improvements made to the MMT training program. In the original Implementation Plan and updates to the plan, milestones were established for conducting the training simulations, releasing interim updates to the training plan, and completing the MMT Command Center. The following updates to the Implementation Plan contained information concerning the MMT and MMT training:

- Revision 1, October 15, 2003, reported that training classes in human factors and decisionmaking would become a regular part of MMT membership training. It stated that simulations would be conducted at least twice a year, and formal processes will be established for reviewing findings from ascent and on-orbit imagery analyses, post-launch hardware inspections, and ascent reconstruction.

- Revision 1.1, November 20, 2003, reported that the SSP had published an interim formal training plan, completed development of five MMT simulations, and standardized MMT membership. The update also listed the critical skills necessary for MMT members, which included the skills specifically cited in the CAIB report—leadership, analysis, and communications.

- Tenth Edition, June 3, 2005, contained a list of the 13 training simulations developed since the CAIB report (seven on-orbit, five prelaunch, and one Contingency Crew Survival Capability simulations) and a list of revisions made to MMT processes, including training revisions, based on lessons learned during those simulations. The update also contained a status report from the Stafford/Covey Return-to-Flight Task Group, which discussed CAIB Recommendation 6.3-1, announced the completion of the MMT Command Center, and designated Safety and Mission Assurance personnel as MMT technical advisors to perform independent risk assessments of MMT activities.

Effective Implementation Strategy

NASA effectively implemented the changes to the MMT training program by issuing updated policies and procedures, ensuring that those policies and procedures were followed, and encouraging comment from parties internal and external to the SSP. The updated policies and procedures are contained in NSTS 07700, Volume II, Book 2, and Volume VIII, Appendix D.

Policy Updates. NSTS 07700 was updated to include procedures for communicating and resolving MMT safety, engineering, and operational concerns. The NSTS contains MMT roles and responsibilities, agenda requirements for MMT meetings, distribution requirements for the agenda and the resulting meeting minutes, "action item" assignments, and the process to poll MMT members when a vote is necessary. The SSP also established procedures to formalize processes for resolving on-orbit anomalies, which require that all anomalies be identified to the MMT for action. For items deemed significant by any MMT member, procedures require that an "office of primary responsibility" be assigned and that a formal MMT action item, status report, and written closure request be prepared and approved. The SSP also established other formalized processes in NSTS 07700, such as the reporting of launch imagery analysis findings.

Training Validation. The SSP ensured that the requirements of the expanded training program were met by establishing a system to track and validate training. The SSP established an annual requirement in NSTS 07700 to complete training and simulations specifically identified in SSP Directive 150B. The SSP also established an automated system to track training and validate the accuracy of training records. According to the system, each of the MMT members was certified prior to the return-to-flight launch.

Comment Requests. As changes to MMT processes and training were being developed, SSP management actively requested and considered comments and suggestions from internal and external parties. Management requested the Return-to-Flight Task Group, launch and flight directors, and audit team to observe training simulations. Comments were captured in a "Lessons Learned" database. The database was used as a tool by the MMT Chair to document the comments and the actions taken by the SSP in response to those comments.

Adequate Contractor Coordination

The expanded training program was adequately coordinated with the SSP contractors who also attended the training and assisted in its development. The SSP engaged three primary support contractors from the Department of Psychology of Northern Illinois University, DeKalb, Illinois; the Department of Business Administration of Trinity University, San Antonio, Texas; and the Department of Psychology and Institute for Simulation and Training, University of Central Florida, Orlando, Florida. The support contractors had expertise in areas such as training methods, human factors, and communications to assist in identifying critical skills for MMT members and selecting appropriate training materials. The SSP worked jointly with its prime contractor, United Space Alliance (USA), to develop the training courses and simulations that were the core of the expanded MMT training program. USA personnel developed all simulations addressing on-orbit scenarios and assisted Kennedy Space Center personnel in developing simulations for launch scenarios. The USA Flight Controller, Space Flight Training Division, Mission Operations Directorate, located at Johnson Space Center, reviewed the training materials, observed simulation sessions, and provided comments to the SSP for improving the courses and simulations. Finally, SSP and USA support personnel from different locations collaborated in establishing the tracking system for MMT certification.

Expanded Training Reflected in MMT Performance

We observed 26 of the MMT meetings held during the first return-to-flight mission. We found that the MMT applied knowledge gained from changes to MMT processes and training methods during those meetings. For example, during the MMT's resolution of engine sensor anomalies, which delayed the launch date from July 13 to July 26, 2005, the MMT followed the new process for anomaly resolution. It established evaluation and analysis teams to review the sensor problem and develop alternative solutions. The MMT meetings included daily status reports that informed members of preliminary findings from the evaluation and analysis teams. Members reviewed supporting details from the daily status reports and submitted additional analysis requests to the teams. Members were polled by the Chair to identify concerns and reach agreement on the proposed solutions. The MMT resolved the issue and ensured that all members had an opportunity to participate in solving the problem.

Conclusion

We believe that NASA took appropriate action in response to CAIB Recommendation 6.3-1 by developing and implementing an expanded training program. The simulations and other forms of training adequately addressed the contingencies detailed by the CAIB concerning crew and vehicle safety, and the SSP ensured that all MMT members benefited from the revised training program. Most notably, the changes in training and procedures were reflected in the activities of the MMT during the first return-to-flight mission. Because of the actions taken or planned by the SSP, the CAIB closed the

recommendation in June 2005. Based on our review, we agree that NASA adequately addressed all MMT training issues raised by the CAIB.

We appreciate the courtesies extended the audit staff during the review. If you have any questions, or need additional information, please contact Ms. Carol Gorman, Space Operations and Exploration Director, at 202-358-2562 or me at 202-358-2572.

Evelyn R. Klemstine

2 Enclosures

cc:
Director, Johnson Space Center
Director, Kennedy Space Center
Director, Marshall Space Flight Center
Director, Management Systems Division

Scope and Methodology

We reviewed the CAIB report, August 2003; NASA's Implementation Plan, August 2004, and its March 2005 and May 2005 updates; the Return-to-Flight Task Group Final Report, July 2005; and NSTS 07700, Volume II, Book 2, Revision D and Volume III, Revision E. We also reviewed the closeout plan of the Space Shuttle Program Requirements Control Board for CAIB Recommendation 6.3-1, March 2005. We found no prior audit reports that addressed the MMT or MMT training.

From July through August 2005, we observed the MMT meetings associated with the STS-114 mission. We also attended 11 training simulations and 6 training courses. We did not evaluate the effectiveness of the self-study readings that are a required part of the MMT training program, but we did trace those self-study readings to source reference materials and determined that the materials were relevant to training objectives stated in the MMT training plan.

Throughout the audit, we provided comments concerning the MMT training program to SSP management for their consideration. Our 79 comments were offered as real-time suggestions to assist management in their efforts to implement changes to the MMT training program. Each comment was based on our observation of a single training simulation or event and was not a formal audit recommendation.

Use of Computer-Processed Data. We used computer-processed data from a database accessible through the World Wide Web in determining whether MMT members met training requirements. To assess the data's reliability, we compared training hours recorded in the database with course attendance sheets. Our review indicated that the training hours recorded in the database were correct.

Review of Internal Controls. We reviewed internal controls that were established in response to CAIB Recommendation 6.3-1. Specifically, we determined that management developed a formal training plan; established policy for MMT responsibilities, leadership, and meeting protocol; and issued policy for formal operating procedures. We also found that management assigned responsibility for course development to specific organizations and personnel. Management established procedures for members to record completed training and to validate the accuracy of training reported as completed by members.

We performed this review from December 2003 through April 2006 in accordance with generally accepted government auditing standards.

Item	OIG Comments and Recommendations	Status
Training Plan	1. Include a section explaining the circumstances of how an individual would be decertified.	Closed
	2. Require each MMT member to develop an individual training plan with the input and approval of MMT member supervisors and the Space Shuttle Program (SSP) Deputy Manager.	Closed
	3. Coordinate the scheduling of the training simulations with the completion of other training requirements.	Closed
	4. Provide milestones or target dates for specific actions outlined in the plan.	Closed
	5. State how MMT members can receive credit for previous training accomplishments in preparing for the minimum level of certification that is being required.	Closed
	6. Require participants to serve on the MMT. The plan should require each primary and alternate member to periodically sit on the MMT or at least attend a minimum number of MMT meetings, even if only as an observer, every year.	Closed
	7. MMT certified members supporting the mission should be required to sign the Pre-Launch MMT (PMMT) endorsement.	Closed
Simulation #3	8. Will primary MMT members ever be required to attend an MMT Training simulation as a total group?	Closed
	9. Consider using a trained facilitator from outside the SSP to help run the meeting.	Closed
	10. The MMT training simulations need to be done in a room that is dedicated and configured to support the MMT.	Closed
	11. Scheduled breaks are needed during MMT.	Closed
	12. Cell phones should be placed on vibrate.	Closed
	13. Specific responses needed for taking polls.	Closed
	14. Individual feedback needed during the debriefs.	Closed
	15. MMT Chair should hold a one-on-one debrief with each member.	Closed
	16. Why didn't primary or alternate MMT members from NASA Headquarters Office of Safety and Mission Assurance (OSMA) participate in the simulation?	Closed
	17. MMT members and support personnel need to speak up and introduce themselves. Also, too many personnel in main conference room.	Closed
	18. Participants are going in and out of the rear doors to the training room. This causes distractions.	Closed
	19. Too many side discussions going on during simulation. It is distracting and keeps members from following the conversation.	Closed
	20. Remote consultants should be considered.	Closed
	21. Attendees apprehensive to share input with MMT members. Presentation skills need to be improved.	Closed

Item	OIG Comments and Recommendations	Status
Simulation #3 Cont'd	22. Microphone system malfunctioning during simulation.	Closed
	23. Handout of presentation not available and overhead projection inadequate.	Closed
Simulation #4	24. Communications concerning the initiation and interim problem reports (IPRs) could be improved by posting them on an electronic bulletin board.	Closed
	25. Unnecessary discussions on previously approved launch commit criteria (LCC). MMT roles and responsibilities not defined, understood, or documented. Waivers specific to an STS-300 scenario should be in place prior to any possible STS-300 launch countdown.	Closed
Simulation #5	26. Johnson Space Center (JSC) MMT members still dominate the discussions and the members at remote locations seem to contribute little until pressed by the Chair.	Closed
	27. No model or graphic displayed of the Space Shuttle for illustration.	Closed
	28. Standard format needed for illustration of issues, concerns, facts, and options available for discussion. The use of a whiteboard to document the issues, etc. is needed for better understanding. Actions need to be documented by the MMT Secretary so that the MMT can resolve the issue.	Closed
	29. There is no use of risk management in prioritizing the problems.	Closed
	30. Several flight rules were changed within an hour that took months to develop. A copy of the flight rules during the simulation would be a great benefit for the members.	Closed
	31. Cell phone usage still not controlled.	Closed
	32. Audience is still having difficulty hearing what is being said at the table.	Closed
	33. MMT Chair could not answer member's concerns/questions.	Closed
Simulation #6	34. LCC still being reviewed by OSMA during MMT simulation.	Closed
	35. STS-300 simulation is not addressed effectively.	Closed
	36. Discussions going on and on that are not MMT concerns. Also, reference to "if you don't have a dog in the fight, don't bite."	Closed
	37. Discussions after a "no go" decision was made.	Closed

Item	OIG Comments and Recommendations	Status
Simulation #6 Cont'd	38. A member was missing when the MMT needed his participation to process a waiver. Do we have a process in place when we can't find a MMT member?	Closed
	39. Polling order still an issue.	Closed
	40. Does SSP Directive 150 address the L-2 (Launch day minus 2) requirements for the PMMT endorsement and why this is not part of the training exercise.	Closed
	41. Excessive cell phone usage during simulation even though signs are clearly posted.	Closed
Simulation #7	42. Too many people still in main MMT meeting facility. This is distracting and takes away from the main discussions. These people should be in the overflow rooms.	Closed
	43. Extensive use of acronyms in presentations makes it difficult to understand and follow presentations.	Closed
	44. Each presenter should allow readers 5 minutes to look through presentation before the briefing.	Closed
	45. Standard format needed for briefings. MMT members not sure what the MMT Chair still desires format-wise. Format should include: problem, issues, impact, and resolution. Handouts should be printed in 3, 4, or 6 charts to a page for easier reading and reduce the waste of paper.	Closed
	46. Dissenting opinions should be noted on the slides, including the key differences between the majority and minority opinions, when those opinions are relevant to the key issues.	Closed
	47. Presentations should be in standard form, color and fonts for easier reading.	Closed
	48. Mission Evaluation Room (MER) managers need to brief from the subsystems. Also, their technical analysis and the engineering story needs to be brought to the table.	Closed
	49. The Chair stated that he did not want the MMT to be an "Engineering Emeritus" team. However, the MMT members spent most of their time working engineering type issues. The MER's engineering excellence should be combined with the Flight Control Center (FCC) judgment to bring some number of options to the table.	Closed
	50. Brainstorming should have been completed by MER and FCC. MMT should only need to verify the results, not redo the efforts of the Flight Control Team.	Closed
	51. MMT Chair recapping what was said in more detail than was presented.	Closed
Simulation #8	52. NASA culture problem displayed from JSC in response to Marshall MMT member—i.e., laughing—when the member asked if the External Tank door could be opened. We feel that the culture problem still needs improvement.	Closed
	53. Laughter at this point was inappropriate at the expense of the professional reputation of another MMT member.	Closed

Item	OIG Comments and Recommendations	Status
Simulation #8 Cont'd	54. Lack of operational risk management training and experience lead the MMT to discuss the cause of the anomaly instead of a decision of what to do about it. The cause can be dealt with upon the Shuttle's return.	Closed
Simulation #9	55. The MMT new training facility/meeting room in building 30 at JSC is impressive; however, a whiteboard, as previously recommended, or one of the large video screens is needed to display all the issues/problems and their status. Some action items were resolved from a previous day, but members were not aware that they had been resolved until the following day's summary report.	Closed
	56. Roles and responsibilities need to be addressed and clarified. Discussions should be complete before the polling process takes place. MMT members playing different roles on different days should not be allowed. We agree that the MMT has made significant progress in their roles and responsibilities, but more work is required.	Closed
	57. Remote locations do not know/recognize several of the MMT members. This is why it is essential that everyone introduce themselves before they speak and to speak loud and clear. We agree with the recommendation to turn the name plate around so everyone in the room and at remote locations knows what office is speaking.	Closed
	58. Remote locations are not aware of the documents that are being distributed at JSC and they are experiencing difficulty accessing and printing the material from the MMT Web site.	Closed
	59. Remote location personnel are still hesitant to speak out. Some of the MMT members thought the KU-Band issue was still "on the table" to be discussed. It was learned the following day that it had been resolved. But to avoid making waves or prolonging the MMT simulation that day, comments are being held back. This is a concern that should be addressed.	Closed
Simulation #10	No comments submitted.	N/A
Simulation #11 Contingency	This was to expose management to a Shuttle contingency. It exercised MMT and Senior Agency Managers' command, control, and communications. The simulation was to exercise the Mishap Response Team. We did not submit comments to the MMT.	N/A
Simulation #12 End-to-End	60. The MMT needs to ensure that the flight test objectives are protected from launch fever. Waiving a camera and not getting all the data we can get is a decision that should be made only under the most pressing of circumstances.	Closed

Item	OIG Comments and Recommendations	Status
Simulation #12 Cont'd	61. Decisions were not being made on the Shuttle repairs during this simulation. For example, no decision was made on whether or not to do repairs or to return home with those repairs completed.	Closed
	62. The MMT did not use the correct polling sheet. This could have an impact if an emergency meeting needed to be called.	Closed
	63. A suggestion box needs to be located at all the remote locations.	Closed
	64. In this simulation, the MMT didn't get the Control Moment Gyro out of the cargo bay while at the station because the timeline was eaten up by orbiter inspection and repair discussion. If it was important enough to launch to station, then the crew should at least get all of the station hardware off the orbiter once there.	Closed
	65. The consultants/advisors from the Behavioral Excellence Strategic Team did not add any value to the process. They elaborated only on the positive and not any on the negative. They also made the same comments each day.	Closed
Simulation #13	No comments submitted.	N/A
Crew Resource Management (CRM) Course	66. No MMT members attended the first class. NASA needs to improve the planning and scheduling of its training activities to ensure maximum participation and to ensure reaching the target audience.	Closed
	67. The need to clarify its target audience and ensure that adequate training is being provided as included under the training plan.	Closed
	68. No Columbia-specific case study of how the Columbia MMT failed to use the CRM principles. NASA needs to modify its CRM training class to incorporate the Columbia MMT shortcomings.	Closed
Critical Decision Making (CDM) Course	69. Incorporate feedback from the class to future CDM training classes by disseminating the information to other MMT members. The instruction in the class did not specifically emphasize MMT lessons learned.	Closed
	70. We recommend extending the training to two full days by adding a Columbia-specific case study discussing how the Columbia MMT failed to use the CDM principles.	Closed
ISS/ Shuttle Overviews	71. The International Space Station Overview class took far too long and went into too much detail for the purpose it was suppose to serve. The Space Shuttle and Flight Rules Overview was very good.	Closed
Training Database	72. MMT members should disclose their individual plans for becoming initially certified by March 2005 and forward such plans to the MMT Chair.	Closed

Item	OIG Comments and Recommendations	Status
Training Database Cont'd	73. Use one attendance sheet consistently at all training locations and ensure that this record contains sufficient detail to support actual MMT member attendance and participation in the training activities listed in the expanded MMT Training Plan.	Closed
	74. Require that the database administrator ensure that all entries made to the training database are adequately supported by the attendance sheets and other hardcopy documentation. If other follow-up is needed, then the database administrator should either obtain additional documentation or appropriately annotate the records.	Closed
	75. Require that each training event included in the expanded MMT Training Plan be tracked separately in the training database.	Closed
	76. Finalize the expanded MMT member list to ensure that any members still to be added to the list are given sufficient time to complete their initial certifications and to provide the primary members exposure to as many simulations as they can fit into their schedules prior to resumption of return-to-flight.	Closed
	77. Unit Work Instruction not developed or documented for MMT database administrator.	Closed
Training Certifications	78. The Chair should complete online certification submission, then target the 17 members that are not yet certified to complete their training requirements prior to RTF.	Closed
	79. The Chair should not consider approving waivers for those members that have had more than sufficient amount of time to comply with certification requirements because this is in noncompliance with the MMT procedures.	Closed