NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, DC 20594

November 20, 2009

AIR TRAFFIC CONTROL FACTUAL REPORT

DCA10IA001

A. AIRCRAFT INCIDENT

Location: En route to Minneapolis-St. Paul International/Wold-Chamberlain Airport (MSP), Minneapolis, Minnesota

Date: October 21, 2009

Aircraft: Northwest Airlines (NWA) Flight 188, an Airbus A-320

B. AIR TRAFFIC CONTROL GROUP

Chairman: Mr. Daniel Bartlett
National Transportation Safety Board (NTSB)
Washington, DC

Members: Ms. Betty Koschig
National Transportation Safety Board (NTSB)
Washington, DC

Ms. Antoinette King
Air Traffic Safety Oversight Service (AOV)
Federal Aviation Administration (FAA)
Washington DC

Mr. Larry Johnson
Air Traffic Organization-Safety (AJS)
Federal Aviation Administration
Washington DC

Mr. Bruce Lampert
National Air Traffic Controller Association (NATCA)
Longmont, CO

Mr. Ellis Thorp
Delta Air Lines
Atlanta, GA

C. SUMMARY

On October 21, 2009, Northwest Airlines (NWA) flight 188, an Airbus A320, N374NW, did not respond to air traffic control communications for approximately one hour 17 minutes during cruise at FL370. Flight 188 flew past their intended destination while the flight was NORDO (no radio communications) but landed without further incident once radio communication was reestablished. There were no injuries to the 2 pilots, 3 flight attendants and 144 passengers onboard. The flight was a regularly scheduled passenger flight operating under 14 Code of Federal Air Regulation Part 121 from San Diego International Airport (SAN), San Diego, California, to Minneapolis-St Paul International/Wold-Chamberlain Airport (MSP), Minneapolis, Minnesota.

D. DETAILS OF THE INVESTIGATION

1.0 Denver Air Route Traffic Control Center

The ATC group convened at Denver Air Route Traffic Control Center (ARTCC) (ZDV) on Tuesday, November 3, 2009. The group met with Mr. Kevin Stark, ZDV Air Traffic Manager (ATM); Ms. Cindy Alexander, Assistant ATM; Mr. Tom Whier, FAA Western Service Area Quality Assurance; and Mr. Paul Garcia, ZDV Support Manager. Mr. Garcia provided a briefing of the events surrounding NWA188 and the group reviewed data and a SATORI playback of the flight. The group toured the control floor of ZDV and interviewed controllers involved in the incident. On November 5, 2009, the group proceeded to Minneapolis ARTCC to continue the investigation.

2.0 Minneapolis Air Route Traffic Control Center

The ATC group convened at Minneapolis ARTCC (ZMP) on Friday, November 6, 2009. The group met with Mr. Kelly Nelson, ZMP ATM; Mr. Larry Tighe, ZMP 510/530 Manager; and Mr. Theodore (Ted) Thomas, ZMP QA/QC. Mr. Thomas provided a brief overview of the events surrounding NWA188 while in ZMP airspace, reviewed portions of a SATORI radar playback and provided the group a tour of the control floor. The group then interviewed the

ZMP controllers. During the ZMP in-brief, Mr. Thomas advised that he had received information from the NWA Certificate Management Office (CMO) that initial contact with NWA188 after being NORDO, was with Winnipeg ARTCC (YWG) on frequency 132.125, Thunder Bay Low sector, at 0112:50 UTC. YWG, on initial contact with NWA188, identified the flight as NWA180, advised them they were on the wrong frequency and instructed the crew to contact Minneapolis Center.

The group met with Mr. Nelson and Mr. Thomas at the conclusion of the field phase of the investigation at ZMP. Mr. Nelson addressed two problems at ZMP that they had been unable to resolve at the local level. The first issue was that despite numerous efforts, they have not been able to get their landlines recorded. Controllers and managers, when required to transmit urgent time critical information, use the speed dial function of a land line versus the cumbersome VSCS[1].

The second area of concern for ZMP ATC management was the DEN[2] line. The location of the DEN line at the Operations Manager's (OM) desk was not conducive to effective coordination with the DEN by the OM during this type of incident. The OM was required to work the control room floor and coordinate and communicate with several areas requiring her to be away from the single site DEN speaker and handset. Because the DEN called the OM while she was away from the desk, DEN staff assumed the OM was not available. Additionally, the equipment provided for the DEN does not operate adequately in a consistent manner. Volume varies independent of volume control on the unit, squelch feedback is so bad at times that the DEN must be turned down or turned off, and occasional clicking over the net is so loud and often that it renders the DEN line unusable. An additional problem with the DEN is that the DEN expects the OM to be able to respond to DEN calls for information at all times. According to ZMP personnel, this is an unrealistic expectation as the OM is usually working the control room floor when coordination and communication with the DEN is required because of an ongoing issue.

In the case of reconstructing critical elements of the NWA188 incident, ATC management was unable to reconstruct certain elements of the event such as DEN line communication and coordination and NWA dispatch phone records because the land lines were not recorded. ATC management considered this an important issue for this investigation, past investigations and anticipates similar difficulties in the future.

On November 7, 2009 the group concluded the field portion of the investigation.

[1] Voice Switching and Control System

[2] Domestic Events Network - Domestic Events Network (DEN) – a 24 hour a day, 7 day a week FAA-sponsored telephonic conference call network (recorded) that includes all ARTCCs in the United States. It also includes various other governmental agencies that monitor the DEN. The purpose of the DEN is to provide timely notification to the appropriate authority that there is an emerging air-related problem or incident.

E. FACTUAL INFORMATION

3.0 ATC FACILITIES

3.1 ZDV

ZDV was a level 10 facility divided into 15 low altitude sectors within 6 low altitude areas and 28 high altitude sectors within 5 high altitude areas. FY09 air activity for ZDV as of September 3, 2009 was 1,547,170 operations.

3.2 ZMP

ZMP was a level 11 facility divided into 39 sectors within 6 areas. FY09 air activity for ZMP as of September 3, 2009 was 1,680,359 operations.

F. HISTORY OF FLIGHT

NWA188 departed SAN on October 21, 2009 enroute to MSP. There were no ATC problems noted or reported with communications regarding NWA188 prior to entering Denver ARTCC (ZDV) airspace. Radar handoff and radio communications transfer between Albuquerque ARTCC and ZDV occurred at 2339:17 UTC[3]. NWA188 checked in with the ZDV area 3, sector 30 radar controller (ZDV R30) at flight level (FL) 370[4] on frequency 135.4. NWA188 reported at FL370 on initial contact with ZDV and ZDV acknowledged the transmission.

At 2345:49, after executing an electronic radar handoff to the ZDV area 3, sector 28 radar controller (ZDV R28), the ZDV R30 controller directed NWA188 to contact ZDV on frequency 134.12. NWA188 acknowledged with "three four one two, Northwest one eighty eight" at 2345:56.

At 2345:28, NWA188 checked in with the ZDV R28 controller at FL370. The R28 controller acknowledged NWA188's transmission. At 2356:41, after executing an electronic radar handoff to the ZDV area 2, sector 18 radar controller (ZDV R18), the ZDV R28 controller directed NWA188 to contact ZDV on frequency 132.17. NWA188 did not acknowledge. Fourteen seconds later, the ZDV R28 controller again directed NWA188 to contact ZDV on frequency 132.17. At 2357:01 NWA188 acknowledged with "okay three two one seven northwest one eighty eight". This was the last ATC communication with NWA188 while in ZDV airspace.

NWA188 entered ZDV R18's airspace but did not check in on the assigned frequency. The ZDV R18 controller did not attempt to contact NWA188 when entering the sector airspace. At 0004, while NWA188 was in an electronic handoff status to the next sector, ZDV area 2 sector 8, (ZDV R8) the ZDV R18 controller was relieved by another controller. The oncoming controller observed that the ZDV R8 controller had accepted the electronic radar handoff and, at 0005:31,

[3] UTC - Coordinated Universal Time. All times in this report are in UTC.
[4] FLIGHT LEVEL – FL - A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, flight level (FL) 250 represents a barometric altimeter indication of 25,000 feet; FL 255, an indication of 25,500 feet.

directed NWA188 to contact ZDV on frequency 127.02. NWA188 did not respond. Twenty-one seconds later, the R18 controller again directed NWA188 to contact ZDV on frequency 127.02. NWA188 did not respond. The ZDV R18 controller did not attempt to contact NWA188 again and did not advise the ZDV sector 8 controller that NWA188 had not responded to the frequency change. During his interview, the ZDV R18 controller stated that it was common practice for air carrier crews to not acknowledge frequency changes and he assumed NWA188 had switched frequencies and was talking to the ZDV R8 controller.

NWA188 entered ZDV R8 airspace and did not check in on the assigned frequency of 127.02 and the ZDV R8 controller did not attempt to contact NWA188 when entering the sector airspace. At 0010 the ZDV R8 controller was relieved by another controller. At 0012:30, after executing an electronic radar handoff to the ZDV area 5, sector 9 radar controller, (ZDV R9) the ZDV R8 controller directed NWA188 to contact ZDV on frequency 126.32. NWA188 did not acknowledge and the controller did not make subsequent attempts to contact NWA188 or verify that NWA188 had contacted ZDV on 126.32 as directed.

NWA188 did not check in with the ZDV R9 controller and the ZDV R9 controller did not attempt to establish communications with NWA188 when entering the sector airspace. After executing an electronic radar handoff to the Minneapolis ARTCC (ZMP) area 5, sector 29 radar controller (ZMP R29), at 0024:16, the ZDV R9 controller directed NWA188 to contact ZMP on frequency 124.87. NWA188 did not respond. Nine seconds later ZDV R9 controller again directed NWA188 to contact ZMP on frequency 124.87. NWA188 did not respond. Seven seconds later, at 0024:32, the ZDV R9 controller called NWA188 for a radio check without response.

The ZDV R9 controller called the receiving controller at ZMP R29 to inquire if NWA188 had checked in on the assigned frequency of 124.87. ZMP R29 advised ZDV R9 that NWA188 had not checked in. The ZDV R9 controller advised the ZMP R29 controller that he would “go find him”.

At 0024:55, the ZDV R9 controller called the previous ZDV controller, ZDV R8, and asked the R8 controller to try to contact NWA188.

At 0025:14, the ZDV R8 controller made a single radio transmission to NWA188 to contact ZDV on frequency 126.32. NWA188 did not respond.

At 0026:07, the ZDV R9 radar controller contacted the ZDV area 5 front line manager (FLM) and requested that the FLM contact the Northwest Airlines company dispatch and ask that dispatch contact NWA188 and direct the pilots to contact ZMP on frequency 124.87. The ZDV R9 controller advised the ZMP R29 controller that ZDV was contacting NWA dispatch and that NWA188 should be back on the frequency in a few minutes.

The ZDV area 5 FLM dialed NWA dispatch on the unrecorded speed dial telephone at his desk. The FLM received a recorded message that the telephone number for NWA dispatch had been changed and provided a new telephone number. The FLM dialed the new telephone number on the unrecorded line and when the line was answered, was an automated recorded menu from

which to select the party the caller was trying to reach. The FLM selected the appropriate number for dispatch and listened to the phone ring 10 to 20 times before he hung up. On the third attempt, he connected to dispatch but was immediately placed on hold for what the FLM stated was "quite a few minutes". Rather than risk not getting through to NWA dispatch on a fourth attempt, the FLM remained on the line until a NWA dispatcher came on the line. The FLM relayed the request of the ZDV R9 controller to have NWA188 contact ZMP on frequency 124.87. NWA dispatch advised they would comply. The ZDV area 5 FLM estimated that it took about 10 minutes to contact NWA dispatch.

ZDV controllers did not transmit on frequency 121.5 in an attempt to contact NWA188.

According to the ZDV area 5 FLM, he did not advise the ZDV operations manager in charge (OMIC) nor the ZMP area 5 FLM of the fact that NWA188 was not in radio communications with ATC.

At 0030:36 and 0036:42 the ZMP R29 controller attempted to contact NWA188 without success. The ZMP R29 controller advised the ZMP area 5 FLM that NWA188 was NORDO and asked the area 5 FLM to call NWA dispatch to try to reestablish communications and to advise the ZMP area 3 FLM that NWA188 was NORDO.

At 0038:15, the ZMP R29 controller advised the next ZMP radar controller, area 3, sector 19, (ZMP R19) that NWA188 was NORDO and executed an electronic radar handoff after which the ZMP R29 controller directed NWA188 to contact ZMP on frequency 119.87. The ZMP R29 controller then coordinated with the ZDV R9 controller to determine what radio frequency the last communications ZDV had with NWA188. The ZDV R9 controller advised the ZMP R29 controller that the last frequency NWA188 had been in communications with was frequency 126.32. However, the last communication that ZDV had with NWA188 had actually been with ZDV R28 on frequency 134.12, when he directed NWA188 to contact ZDV on frequency 132.17.

The ZMP R29 controller advised the ZMP area 1 sector 13 radar data controller (ZMP D13) that the last known frequency that NWA188 was communicating with ATC might have been frequency 126.32.

The ZMP area 5 FLM called NWA dispatch on an unrecorded land line and requested that dispatch contact NWA188 and have them contact ZMP sector 29. After 8 to 10 minutes NWA188 had not came up on the frequency. The ZMP area 5 FLM advised ZMP area 3 FLM that NWA188 was NORDO but recalled that the ZMP area 3 FLM was occupied with the ZMP area 3 sector 19 controller discussing NWA188 and may not have acknowledged the coordination information on NWA188. The ZMP area 5 FLM did not advise the OMIC that NWA188 was NORDO because he assumed that NWA188 would re-establish communications shortly.

After accepting the handoff from the ZMP R29 controller, the ZMP R19 controller attempted to contact NWA188 at 0039:55 by having another Northwest aircraft, NWA flight 196, attempt to contact NWA188 on the R19 frequency 119.87, without success. At 0042:11 NWA196 advised

ATC that they had also passed to NWA dispatch to have NWA188 come up on frequency 119.87.

At 0046:56, 0048:17, and 0051:56, the ZMP R19 controller transmitted to NWA188 without success. In between the transmissions to NWA188, the ZMP R19 controller coordinated with ZMP area 3 low altitude sectors 8 and 9, which were below the high altitude sectors that NWA188 was flying through, to advise that NWA188 was NORDO and was scheduled to land at MSP. The ZMP R19 controller then coordinated with the ZMP area 4 sector 11, (ZMP R11), area 2 sector 15 (ZMP R15), and area 2 sector 16 (ZMP R16) radar controllers to advise that NWA188 was NORDO. At 0056:26, the ZMP R11 controller advised the ZMP R19 controller that he would attempt to contact NWA188 on frequency 121.5.

While the ZMP R19 controller was coordinating with other sectors that may have been affected by NWA188, the area 3 FLM coordinated with the ZMP OMIC. At that point the area 3 FLM learned that the OMIC was not aware of the NORDO situation. The ZMP area 3 FLM advised the OMIC of the situation and returned to area 3 and called NWA dispatch when NWA188 was approximately 50 miles southwest of MSP. The ZMP area 3 FLM was advised by NWA dispatch that they had not established communications with NWA188 and would send another message directing NWA188 to come up on ZMP's frequency.

The ZMP OMIC who the area 3 FLM provided the NORDO information to had been covering the OMIC desk for a short period of time while the actual OMIC was away from the desk conducting other business. The interim OMIC was not signed on the position and a formal OMIC position relief briefing had not occurred before or after the interim OMIC staffed the OMIC position. The interim OMIC recorded the NORDO information on a piece of paper and left it at the OMIC desk. The OMIC returned to the OMIC desk after approximately 5 minutes and did not recall being advised by the off-going interim OMIC about NWA188 and was yet unaware of the situation.

The ZMP area 3 FLM returned to the OMIC desk to advise the OMIC that NWA188 was still NORDO. The OMIC advised the ZMP area 3 FLM that she was unaware of the situation. The ZMP area 3 FLM briefed the OMIC on the situation and pointed out the aircraft on a radar display near the OMIC position.

At 0103:02, after coordinating with ZMP R15 and R16, the ZMP R19 transferred control of NWA188, who was still NORDO, to the ZMP R16 controller. The area R19 controller did not direct NWA188 to change to the R16 frequency.

At 0107:41 and 0112:47 the ZMP R16 controller attempted to establish communications with NWA188 by transmitting in the blind, "northwest one eighty eight Minneapolis" without success.

At approximately 0112 the ZMP OMIC established communications with the DEN and advised the DEN of the situation. The OMIC was not aware that the DEN had not been notified about the NWA188 NORDO situation prior to her initial call. The OMIC advised the DEN that NWA188 had entered ZMP airspace NORDO from ZDV at FL370 and attempted to contact

NWA188 via NWA dispatch, on 121.5, and via other frequencies without success. At 0112 the ZMP OMIC requested fighter assistance for intercept of NWA188 via an unrecorded telephone landline. The OMIC made the request on the landline because she was not sure who was on the DEN line and was concerned about security.

At the direction of the ZMP area 2 FLM, at 0113:56 the ZMP R16 controller requested NWA1510 change to frequency 133.45 and to attempt to establish communications with NWA188. The controller asked that if NWA1510 established communications with NWA188 to have NWA188 contact ZMP on the area 2 sector 16 frequency.

At 0112:50, NWA188 contacted Winnipeg Area Control Center (YWG), Thunder Bay Low Sector on frequency 132.125 and advised that they had over-flown their destination and that they needed to turn around and head for Minneapolis. After establishing NWA188's position overhead Eau Claire at FL370, the YWG controller advised NWA188 that he was on the wrong frequency and directed NWA188 to contact ZMP on frequency 133.45 and if not successful to use frequency 133.45 or 123.72.

While the ZMP R16 controller was coordinating with another NWA flight (NWA1510) to try to establish communications with NWA188 on frequency 133.45, the ZMP R13 controller, in whose airspace NWA188 was now flying, was coordinating with NWA 1553 to try to establish communications with NWA188. At 0113:02 the ZMP R13 controller requested NWA1553 to attempt to contact NWA188 on frequency 126.23 and if communications were established to have NWA188 come up on sector R13's frequency of 123.72.

At 0114:06 NWA188 established communications with ZMP R13 on 123.72.

NWA188 advised ATC that they had gotten distracted and over-flown MSP, were over Eau Claire and requested a one hundred eighty degree turn for an arrival into MSP from Eau Claire. NWA188 was directed to fly heading 100 degrees for radar vectors for descent and the Eau Claire Eight arrival.

At 0115:08, NWA1553 advised NWA188 that MSP wanted him to contact center on 133.75. NWA188 acknowledged the new frequency when the ZMP R13 controller countered the frequency change guidance and directed NWA188 to remain on the current frequency of 123.72. NWA188 acknowledged.

As ZMP was re-establishing communications with NWA188, The DEN queried the OMIC for the need for fighter support. Before the OMIC responded to the query, she was advised that communications with NWA188 had been re-established. After relaying this information to the DEN, the DEN requested that the OMIC needed to determine that the NWA188 cockpit and the situation on board the aircraft was secure. The OMIC proceeded to the R13 controller and asked the controller to ensure the cockpit was secure. NWA188 responded that the cockpit was secure and that they had gotten distracted. The OMIC reported to the DEN that the pilots had reported the cockpit was secure and that the pilots had gotten distracted. The DEN advised they needed more information on the security of the aircraft.

At 0117:29, after assigning a heading of 210 degrees and directing NWA188 to descend to FL320, the ZMP R13 controller transferred communications to the ZMP R16 controller on frequency 133.75.

In response to the DEN, the OMIC directed the ZMP R16 controller to give NWA188 some "confidence turns" to ensure NWA188 was following ATC directions. The ZMP R16 controller vectored NWA188 280 degrees and asked again to provide a brief explanation of what had happened. At 0119:52, NWA188 responded with "cockpit distractions that's all I can say".

At 0122:46 the ZMP R16 controller cleared NWA188 direct to the GOLLF intersection and the GOPHER five arrival. One minute and 12 seconds later the ZMP R16 controller cleared NWA188 to descend at pilot's discretion to FL240. At 0124:18 the ZMP R16 controller directed NWA188 to fly heading 360 [degrees] and again asked the pilot to elaborate on the distraction. NWA188 responded that they were dealing with some company issues and that's all he could tell the controller at the time.

At 0127:02, the ZMP R16 controller directed NWA188 to fly heading 270 degrees. After NWA188 took the assigned heading, the ZMP R16 controller cleared NWA188 direct to OLLEE for the GOPHER five arrival and transferred communication to the ZMP R10 controller on frequency 121.05.

The remainder of the flight was uneventful. The ZMP R10 controller transferred control of NWA188 to MSP approach control on frequency 126.35 at 0143. NWA188 landed at MSP at 0205.

G. PERSONNEL INTERVIEWS – ZDV

4.0 Alex Herda Front Line Manager (FLM)

The ATC Group interviewed Mr. Alex Herda on November 3, 2009. Mr. Herda's operating initials were AH. Mr. Herda had no representation. In response to questions presented by the group, Mr. Herda provided the following information:

Mr. Herda's entrance on duty (EOD) with the FAA was September 26, 1989. After completing training at the FAA Academy, Mr. Herda worked at Houston ARTCC from September 1989 to September 2007. Mr. Herda had been at ZDV since September 2007, and was qualified on sectors 35R/D and 33R positions, and designated as FLM, area 5. Mr. Herda held no aeronautical ratings other than air traffic control specialist (ATCS). Mr. Herda's immediate supervisor was Ms. Melissa Booth.

Mr. Herda's medical certificate was current with a requirement to have eyeglasses in his possession while performing ATC duties. Mr. Herda wore his eyeglasses while on position that day.

Mr. Herda's work schedule consisted of Sunday and Monday as regular days off (RDO) Tuesday 1500 to 2300[5], Wednesday 1445 to 2245, Thursday 0830 to 1630, Friday 0630 to 1430, and Saturday shifts that varied but were either a 0600 to 1400, or a midnight shift. Mr. Herda did not work overtime, but earned one-half credit hour each day for performing administrative functions.

On October 21, 2009, Mr. Herda worked his regular scheduled shift of 1445 to 2245, and was assigned to FLM area 5 position. When asked to describe the events leading to the incident, Mr. Herda stated that at 0026 UTC on October 22nd, Mr. Michael Roy, sector 9 controller, called him via the voice switching communication systems (VSCS) advising him NWA188 was not talking to him, and requested that he call company dispatch. Mr. Herda attempted to speed dial Northwest dispatch, but received a recording that directed him to another number. He called that number and the phone rang 10 to 20 times without being answered, so he hung up the phone and redialed. After several rings, the line was answered, but he was put on hold for a few minutes. Mr. Herda stated that since he had difficulty getting through to the dispatcher, he decided to wait on the line, and not attempt to call again. The dispatcher came on the line shortly after and took the information on NWA188. Mr. Herda said it does not normally take that long to get through to a dispatcher, and it was quite frustrating. Mr. Herda was needed by another sector to assist a controller, and at that point noticed that NWA188 had been given an automated information transfer (AIT) through sector 35 to ZMP, and observed he was in ZMP's airspace. Mr. Herda stated he assumed the aircraft was now talking to ZMP, since ZMP had not called them with any inquiries about the aircraft. Mr. Herda did not report the NORDO to the OMIC.

Mr. Herda was asked when he was informed there was an incident with NWA188. He replied that he found out about 2100 while still on shift. Mr. Herda said the OM advised him that FAA Headquarters had talked to the DEN, and they wanted to know what happened with NWA188. Mr. Herda researched what had happened, and discovered that NWA188 had tracked through several sectors with no communications.

Mr. Herda was asked about possible solutions to prevent this type of incident from recurring. He explained that the User Request Evaluation Tool (URET) and Display System Replacement (DSR) do not provide controllers the same memory jogging capabilities as flight strips did, and that there was no standardized method for indicating when a controller was talking to an aircraft. He stated that the lack of emphasis on standardization was problematic because all controllers have their own techniques.

Mr. Herda was asked if he used 121.5 to contact aircraft that were NORDO, and he replied that he used the frequency, but that frequency was not available in all sectors. Mr. Herda was asked if he was familiar with NORDO and DEN procedures. He explained he was familiar with these procedures before the incident, as it was part of his supervisory training.

Mr. Herda explained that he made approximately 3 to 5 phone calls to company dispatchers per shift, because aircraft had not contacted the controller. These types of occurrences are common, and it is a common practice to assume that the after the company dispatcher had been contacted, the aircraft would reestablish radio contact with the controller. Mr. Herda assumed NWA188

[5] Controller work schedules are listed in local time based on a 24-hour clock

contacted ZMP, and in hindsight, stated that he should have informed the OMIC about NWA188, and he dropped the ball.

Mr. Herda said that 99 out of 100 times when he contacted a commercial airline dispatcher to have the aircraft come up on the frequency, the issue was resolved. He explained that aircraft communications addressing and reporting system (ACARS) seem to be sent out quickly to the airlines. Mr. Herda stated that military aircraft listen very well to guard (121.5 or 243.0) and responded quickly, but general aviation (GA) aircraft were the most difficult to contact because they do not have to subscribe to ARINC or Global. Mr. Herda states it is common practice to Google the tail number of a GA aircraft and contact the secretary to have him or her relay a message to the pilot.

4.1 Michael (Mick) Roy Certified Professional Controller (CPC)

The ATC Group interviewed Mr. Michael Roy on November 3, 2009. Mr. Roy's operating initials were VG. Mr. Roy was represented by Mr. Douglas O'Connell, ZDV National Air Traffic Control Association (NATCA). In response to questions presented by the group, Mr. Roy provided the following information:

Mr. Roy's EOD with the FAA was May 1988. After completing training at the FAA Academy, Mr. Roy worked at Fort Worth ARTCC from August 1988 until February 2002. Mr. Roy had been at ZDV since February 2002 and is qualified on all positions in area 5. Mr. Roy was designated as a controller in charge (CIC) and an on-the-job training instructor (OJTI). Mr. Roy held no aeronautical ratings other that his ATCS. Mr. Roy's immediate supervisor was Mr. Alex Herda. Mr. Roy's medical certificate was current with a requirement to have eyeglasses in his possession while performing ATC duties. Mr. Roy wore his eyeglasses while on position that day.

Mr. Roy's work schedule consisted of Sunday and Monday as RDO, Tuesday 1505 to 2305, Wednesday 1330 to 2130, Thursday 1200 to 2000 and Friday and Saturday 0630 to 1430. Mr. Roy worked overtime once every couple of months.

On October 21, 2009, Mr. Roy worked his regular scheduled shift from 1330 to 2130, and was assigned to sector 9R/D position. When asked to describe the incident, Mr. Roy stated that he had accepted an automatic handoff on NWA188 from sector 8 but had not attempted to communicate with NWA188 until he tried to transfer communications to ZMP ONL-H high sector 29 on 124.87. After three attempts to contact NWA188, Mr. Roy contacted ZDV sector 8 to ask if they could switch NWA188 to sector 9's frequency. Mr. Roy then called ONL-H to check if they were talking to NWA188. The controller responded that they were not. Mr. Roy then called the FLM, Mr. Herda, on the VSCS and asked him to call the company dispatcher (Northwest) and have NWA188 come up on ZMP's frequency of 124.87. Mr. Roy explained that when a controller calls the FLM to contact a company's dispatch, it is understood that the aircraft is NORDO. Mr. Roy then called ONL-H and advised them that his supervisor was calling dispatch and that NWA188 should be up on frequency 124.87 in a few minutes. After NWA188 crossed the airspace boundary between into ZMP, he dropped the radar track.

Mr. Roy states it is a common situation to have aircraft not checking in, and it happens several times per shift. The procedures Mr. Roy applied in this incident, have always worked in the past, therefore he had no reason to suspect that NWA 188 would not come up on ZMP's frequency.

Mr. Roy was not aware of this incident until he saw it on the news the next day. Mr. Roy stated that in hindsight, had he known that the two previous sectors had not communicated with NWA188, he would have made a greater effort to establish communication earlier.

Mr. Roy explained that the URET system had no flight progress strips; therefore, there was no standardized procedure for indicating if an aircraft was in communication with a controller. Each controller had their own technique, such as highlighting the radar data block, repositioning the radar data block at different angles on the radar presentation, or making the data block leader line fade away by typing in slant zero.

Mr. Roy stated that ZMP did not call back and advise that NWA188 was no longer NORDO, and had not expected that call. Mr. Roy felt that he had done all he could with the procedures available. Mr. Roy said that the only other thing he could have done was tried to contact NWA188 on 121.5, however, since he was not aware that the NWA188 was NORDO, this situation did not warrant such an action.

4.2 Thomas Meyer Front Line Manager (FLM)

The ATC Group interviewed Mr. Thomas Meyer on November 4, 2009. Mr. Meyer's operating initials were RJ. Mr. Meyer had no representation. In response to questions presented by the group, Mr. Meyer provided the following information:

Mr. Meyer's EOD with the FAA was July 19, 1989. After completing training at the FAA Academy, Mr. Meyer was assigned to Salt Lake ARTCC (ZLC) where he worked until transferring to ZDV. Mr. Meyer had been at ZDV since November 2008, and was qualified on sectors 8R/D, 67R/D positions, and designated as an OMIC and a FLM, area 2. Mr. Meyer held no aeronautical ratings other than ATCS. Mr. Meyer's immediate supervisor was Mr. Steve Deubler. Mr. Meyer's medical certificate was current with a requirement to wear corrective lenses while performing ATC duties. Mr. Meyer wore his eyeglasses while on position that day.

Mr. Meyer's work schedule consisted of Sunday and Monday as RDO, Tuesday 1430 to 2230, Wednesday 1330 to 2130, Thursday 0745 to 1545, Friday from 0630 to 1430, and Saturday shifts that varied but were either a 2230 to 0630 or 0630 to 1430. Mr. Meyer worked approximately 8-hours overtime once a quarter, and earned one-half credit hour each day for performing administrative functions.

On October 21, 2009, Mr. Meyer's regular scheduled shift was 1330 to 2130, but he worked until 2400, and was assigned to FLM area 2 position. When asked to describe the event, Mr. Meyer explained that he was assigned the area 2 FLM position at the time of the incident, but about 2000 he relieved Mr. Mark Bunge, as the OMIC. Mr. Bunge passed down that the DEN, who he had just gotten off the phone with, had reported that NWA188 had over-flown MINNEAPOLIS AIRPORT NORDO and had come from ZDV. Mr. Meyer and Mr. Bunge reviewed the tactical situation display (TSD) and the digital audio playback (DALR), which indicated that sectors 30

and 28 had normal communications with NWA188, but sectors 18, 8, and 9 did not. Mr. Meyer states that during the playback of audio and video, he heard sector 9 attempt to contact NWA188 on three occasions, and called ZMP to check if he was with them. He said that sector 9 then called area 5 FLM, Mr. Herda, requesting him to contact Northwest dispatch. The FLM did not advise the OM that NWA188 was NORDO. Mr. Meyer called the about his findings DEN, and provided them with a timeline of NWA188 while in ZDV's airspace. Mr. Meyer then called and notified his supervisor, Mr. Duebler, about the situation.

Mr. Meyer attributed this incident to non-standard ATC procedures, regarding frequency changes for aircraft operating in ZDV airspace, specifically the lack of standard procedures for URET. Some controllers have developed personal techniques to jog their memory, such as making the data block brighter or dimmer, relocating the data block relative to the radar target, adjusting the length of the leader line between the data block and the target, or depending on their memory for who is up on their frequency. Mr. Meyer believes that a standardized method needs to be developed and implemented that allows the controller to see the status of communications with the pilot on the radarscope thereby allowing the controller to keep his or her eyes "on the glass."

Mr. Meyer explained that as an FLM he would advise the OM that he had a NORDO aircraft, and relay what actions had been taken to contact the aircraft. If in the OM position, he would relay the information about the aircraft to the DEN. Mr. Meyer stated there was an average of 12-15 NORDO aircraft per shift that required company dispatch involvement in order to get an air carrier to establish communication. He said that usually 99 out of 100 times the aircraft quickly responds to an ACAR. Mr. Meyer said he did not normally broadcast on 121.5 because company dispatch usually resolved the issue.

Mr. Meyer explains that after a NORDO aircraft had been transferred to an adjacent facility, the controller does not receive nor solicit any additional information regarding that aircraft. It is understood that the transferring controller had exhausted all available options to contact the aircraft prior to transferring control and the issue now belongs to the receiving controller.

Mr. Meyer stated that in addition to the management issued mandatory read and initial training addressing NORDO issues, he additionally conducted crew breakout training sessions with crew B and C, and discussed standardized methods for ensuring communications transfers are effective.

4.3 Todd James Certified Professional Controller (CPC)

Mr. Todd James, was not on the witness list, but asked to meet with the group for a brief discussion regarding NWA188. The group met with Mr. James on November 4, 2009.

Mr. James stated that there was an emergency locater transmitter (ELT) going off for a lengthy period of time on October 21, 2009, that had been apparently transmitting from Colorado Springs, CO. There were numerous pilot reports of the ELT, but the ELT was not reported or heard by controllers at ZDV. Mr. James stated that the weather forecast reported icing in the area, and was concerned that there was little action being taken by ATC to identify the source of

the ELT. Mr. James expressed his concern to management but was advised to disregard reports of ELT's.

Mr. James theorized that the NWA188 might have been receiving the ELT on 121.5 while flying over the area. If the pilots used their overhead speakers versus headsets, they may have turned down the speaker to subdue the ELT noise, which could have contributed to NWA188 not hearing ATC calls. Mr. James offered that, based on the flight path of NWA188, that review of Albuquerque ARTCC (ZBQ) sectors 15/70/71 may reveal additional information in support of this theory.

4.4 Harold Hostetter Certified Professional Controller (CPC)

The ATC Group interviewed Mr. Harold Hostetter on November 4, 2009. Mr. Hostetter's operating initials were HE. Mr. Hostetter had no representation. In response to questions presented by the group, Mr. Hostetter provided the following information:

Mr. Hostetter's EOD with the FAA was August 1990. After completing training at the FAA Academy, Mr. Hostetter was assigned to Salt Lake Center where he worked until transferring to ZDV in 2000. Mr. Hostetter had been at ZDV since September 2000, and was qualified on all control positions in area 2, and was designated as an OJTI. Mr. Hostetter held a private pilot's license, but it was not current. Mr. Hostetter's immediate supervisor was Mr. Thomas Meyer. Mr. Hostetter's medical certificate was current with no restrictions.

Mr. Hostetter's work schedule consisted of Sunday and Monday as RDO, Tuesday 1500 to 2300, Wednesday 1330 to 2130, Thursday 0730 to 1530, Friday from 0630 to 1430, and Saturday 2230-0330. Mr. Hostetter worked approximately six to ten, 8-hour overtime shifts the past year.

On October 21, 2009, Mr. Hostetter worked his regular scheduled shift of 1330 to 2130 shift, and was assigned to sector 18R position. When asked to describe the incident, Mr. Hostetter stated that he had received an uneventful position briefing from Mr. Andy Farr, before relieving him from the position. When he sat down at the position, NWA188 was in handoff status to 8R. After seeing 8R accept handoff, Mr. Hostetter made two attempts to transfer communication of NWA188 to 8R, but he did not receive an acknowledgment for the frequency change. Mr. Hostetter said that it is common for air carriers not to acknowledge frequency changes. Approximately 15 to 20 minutes later, 8R contacted him with requesting him to try to get NWA188 to switch to their frequency. Mr. Hostetter attempted to contact NWA188, but did not receive a response. Mr. Hostetter stated he felt his involvement ended with NWA188 at this point, because he thought that NORDO procedures had been started.

Mr. Hostetter was not aware that NWA188 was an incident until he heard it on the news the next day, and had no idea he was involved until his supervisor told him he was involved. He reviewed the voice tape and felt that it was an "unremarkable event." Mr. Hostetter stated that this type of situation is a common event that occurs at least one or 2 times per shift.

Mr. Hostetter stated there was not a standardized procedure that indicated if an aircraft was in communication with a controller, therefore personal techniques such as highlighting the data block, repositioning the data block at different angles, and using slant zero. Mr. Hostetter said

that he had no problem with the different ways controllers applies their personal techniques for confirming aircraft on frequency.

4.5 James King Certified Professional Controller (CPC)

The ATC Group interviewed Mr. James King on November 4, 2009. Mr. King's operating initials were YM. Mr. King was represented by Mr. Lyle Burlington, ZDV NATCA. In response to questions presented by the group, Mr. King provided the following information:

Mr. King's EOD with the FAA was April 3, 2005. Mr. King had worked at ZDV since 2005, and was qualified on all control positions in area 2, and designated as an OJTI. Mr. King held no aeronautical ratings other than ATCS. Mr. King's immediate supervisor was Mr. Steve Mihalchick. Mr. King's medical certificate was current with no restrictions.

Mr. King's work schedule consisted of Monday and Tuesday as RDO, Wednesday 1505 to 2305, Thursday 1330 to 2130, Friday 0730 to 1530, Saturday 0645 to 1445, and Sunday 0615 to 1415. Mr. King did not work overtime.

On October 21, 2009, Mr. King did not work his normal shift on the day of the incident. He switched shifts with another controller and worked the 1015 to 1815 shift, and was assigned to sector 8R position. When asked to describe the events leading to the incident Mr. King stated he was not aware of this incident until the next day when he reported to work. Mr. Ashworth informed him that recorded information indicated that he had accepted a handoff about two and one-half minutes before he was relieved by Linda McCray. Mr. King stated he had no recollection of working NWA188.

Mr. King stated it was common for aircraft not to call them immediately after being switched to another controller because of several possible reasons: the controller delays switching the aircraft; pilots forget to check in on their frequency; and pilots confuse their frequency of 127.02 with Kansas City frequency of 120.72.

Mr. King was asked what technique he used on the URET, that would indicate he was in communication with an aircraft, and he explained when combined on R and D, he relied on his memory; and when he had a D side controller, that person would check the box.

Mr. King explained he was familiar with NORDO procedures and that if he could not reach the aircraft he would call the previous sector to check if the aircraft had switched. He would then call the advancing sector to see if the aircraft had prematurely switched frequency. If neither sector were talking to the aircraft, he would advise the supervisor. Mr. King had no recollection of when he received NORDO training, prior to the training provided as result of this incident.

4.6 Oscar Casey Certified Professional Controller (CPC)

The ATC Group interviewed Mr. Oscar Casey on November 4, 2009. Mr. Casey's operating initials were OZ. Mr. Casey was represented by Mr. Lyle Burlington, ZDV NATCA. In response to questions presented by the group, Mr. Casey provided the following information:

Mr. Casey's EOD with the FAA was February 2, 1984. Mr. Casey worked at Memphis ARTCC (ZME) for fourteen years, and had been at ZDV since 1999. He was qualified on all positions in area 2, and was designated as a CIC and OJTI. Mr. Casey held no aeronautical ratings other than his ATCS. Mr. Casey's immediate supervisor was Mr. Steve Mihalchick.

Mr. Casey's medical certificate was current with a requirement to wear eyeglasses while performing ATC duties. Mr. Casey wore his eyeglasses while on position that day.

Mr. Casey's work schedule consisted of Monday and Tuesday as RDO, Wednesday 1500 to 2300, Thursday1330 to 2130, Friday 0730 to 1530, Saturday 0630 to 1430, and Sunday 2245 to 0645. Mr. Casey worked approximately 8 to 10 overtime shifts per year.

On October 21, 2009, Mr. Casey worked his regular scheduled shift of 1500 to 2300, and was assigned to sector 18D position. Mr. Casey stated he had no recall of NWA188, even after reviewing the audio. He recalls Mr. Jamie King worked the 18R position while he monitored Mr. Michael Shurley on the 18D position, before Mr. King was relieved by Mr. Hostetter. Mr. Casey stated he did not do anything differently when signed on the D position or the R position. While on the D position, he stated it was his responsibility to know who had checked on the frequency, and he kept track of this by memory.

Mr. Casey stated staffing at ZDV is adequate and ZDV's workforce consists of 25% developmentals in training. Mr. Casey is satisfied with the quality of developmentals they have there.

Mr. Casey stated more tools were needed to help maintain awareness such as more colors choices to serve as memory joggers, and the ability to change the target symbol and shape. He commented that the tools the agency decides on should be standardized, and in a location that would not require the controllers to take their eyes away from the scope.

Mr. Casey stated that NORDOs were not uncommon. He said three or four times a week he had aircraft that just did not switch over to the next frequency. When Mr. Casey is on a radar associate position and he doesn't hear an aircraft acknowledge a frequency change he will call the receiving and previous controller to see if the aircraft is on their frequency.

Mr. Casey does not teach his developmental techniques. He let the developmentals develop their own technique even if they pick up their technique from another controller.

Mr. Casey compared NORDO occurrences between his previous facility (Memphis ARTCC) and ZDV. He stated they are about the same, but thinks the aircraft listen to the frequencies better the further east you go because the airspace and sectors are smaller, transmissions are made more frequently in the sectors further east, and the congestion on frequencies is more stressful in the eastern States.

Mr. Casey stated that there had not been any recent training on NORDO aircraft. Mr. Casey believes the checklist on the position for the relief briefing is adequate to communicate who had checked on the frequency and who had not. If he was using the checklist to give a briefing he

would say, “You are talking to all the aircraft except…” He brought this technique from Memphis ARTCC.

Mr. Casey stated only 50 percent of the controllers in his area use memory joggers. Mr. Casey had not observed memory joggers being used by controllers staffing the radar associate position while using the URET.

Mr. Casey believes the incident with NWA188 is related to Mr. Todd James’ theory, because the ELT on the 121.5, was on for hours, so the pilots may have turned down the speaker volume, and therefore they could not hear the controllers trying to contact them.

Mr. Casey thinks there is a lot of apathy in ZDV because the younger controllers are not aware of all the things the pilot is dealing with in the cockpit. The less experienced controllers expect the pilots to respond immediately to any instruction issued to them as soon as possible. Mr. Casey thinks that the familiarization program, where the controllers rode jump seat in an aircraft, should be reinstated so the controllers can gain a better understanding of what pilots do in the cockpit.

4.7 Rupert (Andy) Farr Certified Professional Controller (CPC)

The ATC Group interviewed Mr. Rupert (Andy) Farr on November 4, 2009. Mr. Farr’s operating initials were OH. Mr. Farr was represented by Mr. Michael Naiman, ZDV NATCA. In response to questions presented by the group, Mr. Farr provided the following information:

Mr. Farr’s EOD with the FAA was April 3, 1989. After completing the FAA academy, he transferred to Cleveland ARTCC where he worked until 1993. Mr. Farr had worked at ZDV since 1993. He was qualified on sectors 61R/D, 67R/D, 17R/D, 18R/D, and 8R/D. Mr. Farr held no aeronautical ratings other than ATCS, but was an adjunct instructor in Air Traffic Control at the Metropolitan State College Denver. His immediate supervisor was Mr. Steve Mihalchick.

Mr. Farr’s medical certificate was current with a requirement to wear eyeglasses while providing ATC services. Mr. Farr wore his eyeglasses while on position that day.

Mr. Farr’s work schedule consisted of Monday and Tuesday as RDO, Wednesday 1500 to 2300, Thursday 1400 to 2200, Friday 0745 to 1545, Saturday 0645 to1445, and Sunday 0615 to 1415.

On October 21, 2009, Mr. Farr worked his regular scheduled shift of 1500 to 2300, and was assigned to sector 18R position. When asked to describe the events leading to the incident Mr. Farr stated he did not have a recollection of the event. His statement was based upon a reconstruction of the event after listening to the audio recording.

Mr. Farr was not sure whom he relieved on position R18 when he signed on at 2316 UTC. Mr. Farr stated he took the handoff on NWA188 at 2359 UTC, and was busy sequencing aircraft for Phoenix and had DAL1287 requesting a flight path deviation around weather. DAL1287 had requested to deviate right of course and then modified the request to deviate left of course. Mr. Farr initiated a handoff of NWA188 to sector 8 at 0001 UTC, and then began a position relief briefing with Mr. Hostetter at 0003 UTC. After the position relief briefing was completed, Mr.

Farr unplugged from the position and conducted a "post review" with Mr. Hostetter discussing DAL1287's deviation clearance. Mr. Farr said he annotated the deviation in the line 4 of DAL1287's data block, but forgot to brief the controller about that in the position relief briefing. That is why he did a post review.

Mr. Farr was asked to describe the handoff sequence he conducted for NWA188, going from 28R to 18R, and then to 8R. Mr. Farr stated that he accepted the NWA188 handoff from 28R just prior to the 28 and 18 common boundaries. He then initiated the handoff of NWA188 to 8R immediately after NWA188 crossed 28 and 18's common boundaries. Mr. Farr stated that he used this early handoff technique for aircraft that were on an unusual flight path (south/north) when most traffic was flowing east/west. Mr. Farr was asked if NWA188 was in a handoff mode (flashing) when the position relief briefing was conducted. He responded that NWA188 was flashing during the position relief briefing.

Mr. Farr was asked if part of his position relief briefing included indicating which aircraft he had up on his frequency. Mr. Farr stated that he only provided information on those aircraft that needed attention.

When asked if there were automated information transfer (AIT)[6] procedures between sectors 18, 8 and 9, Mr. Farr responded that all AIT procedures were in the sector binder, and there were no AIT procedures between sectors 18, 8 and 9.

Mr. Farr was asked what technique he used to indicate he had communication with an aircraft when working R or D, and what technique he used for indicating he transferred communication. He responded, for establishing communication he relied on memory when working R side, and when working D side, he explained there was a method of repositioning the strip to the upper bay by a middle click to move the strip above the bar. Mr. Farr stated that he typed in a slant zero to indicate communications transfer.

Mr. Farr was asked if he had received any NORDO refresher training recently. He was not sure about NORDO training, but recalled CBI training on Suspect Aircraft.

Mr. Farr was asked to compare NORDO occurrences from his previous facility, Cleveland ARTCC, and ZDV. He stated that he does not recall very many NORDO events in Cleveland ARTCC, but there are many in ZDV. Mr. Farr thought it was due to the larger sector sizes, and the longer amount time the aircraft spent in ZDV.
Mr. Farr was asked how many occurrences of NORDO aircraft he normally experienced during the course of a shift. He responded that he normally had 1 to 2 NORDO occurrences per shift.

Mr. Farr was asked what action he would take if an adjacent controller advised him that an aircraft was NORDO. He stated that he would notify his FLM, and would ask the reporting controller what action had been taken to locate the NORDO, and if his FLM had been advised. When asked what actions he would take if he had a NORDO aircraft, Mr. Farr explained that if

[6] AUTOMATED INFORMATION TRANSFER-AIT - A pre-coordinated process, specifically defined in facility directives, during which a transfer of altitude control and/or radar identification is accomplished without verbal coordination between controllers using information communicated in a full radar data block.

there was no response to radio call, after two or three times, he would check with the previous controlling sector, then check with the next sector, and then he would try the aircraft again. If he still had no luck, Mr. Farr stated he would then advise the FLM. Mr. Farr also said that for GA aircraft he would broadcast on 121.5. For air carriers he would ask a company aircraft to contact the aircraft and relay a message, or ask a company aircraft to call the aircraft on 121.5; or broadcast on 121.5 if available on the sector, or contact the aircraft's company via speed dial and request that they advise that aircraft to contact the appropriate center frequency.

Mr. Farr was asked if he had any recommendations for improving the controller awareness of aircraft on frequency. He suggested standardized procedures that indicated the status of radio communications, but he was not supportive of memory jogger devices.

4.8 Linda McCray Certified Professional Controller (CPC)

The ATC Group interviewed Ms. Linda McCray on November 4, 2009. Ms. McCray's operating initials were LV. Ms. McCray was represented by Ms. Michael Naiman, ZDV NATCA. In response to questions presented by the group, Ms. McCray provided the following information:

Ms. McCray's EOD with the FAA was September 2002. Ms. McCray completed the FAA academy, after she was assigned to ZDV in 2002. Ms. McCray was qualified on all operational positions within area 2, and was designated as a CIC and OJTI.

Ms. McCray's employment history prior to the FAA includes ATCS in the United States Army, ATCS for the Department of Defense. Ms. McCray held no aeronautical ratings other than ATCS. Ms. McCray's supervisor was Steve Mihalchick. Ms. McCray's medical certificate was current with no restrictions.

Ms. McCray's work schedule consisted of Monday and Tuesday as RDO, Wednesday 1500 to 2300, Thursday 1100 to 1900, Friday 0700 to 1500, Saturday 0600 to 1400, and Sunday 2245 to 0645.

On October 21, 2009, Ms. McCray worked her regular scheduled shift of 1500 to 2300, and was assigned on 8R/D position. When asked to describe the events leading to the incident Ms. McCray stated that without the review of recording prior to the interview, she would have no recollection of the incident.

When asked what technique Ms. McCray uses to determine if an aircraft had checked on her frequency, she said after she accepts the handoff, she expects the aircraft to check on, and waits for that to occur. She stated this technique is overall successful for her. Ms. McCray stated that at the time she accepted control of 8R, relieving Mr. Jamie King, she did not know if NWA188 was on her frequency, because the aircraft was still within the sector 8 boundary. Ms. McCray stated she transmitted to NWA188 to contact Denver Center on 126.32, but there was no response, so she assumed that Mr. King had already transferred communication to sector 9. Ms. McCray stated that there was no mention of NWA188 in the position relief briefing.

When asked what you would have done differently if you would have known the aircraft was NORDO, Ms. McCray stated the she would have advised the FLM of the situation.

Ms. McCray was asked what technique she used to indicate she had transferred communication of an aircraft, and she responded that she uses a slant zero data block as a reminder to her that the aircraft had been changed to the next sector frequency. Ms. McCray stated she could not recall if she was still signed on position when the sector 9 controller called sector 8R to check if NWA188 was up the frequency. Ms. McCray stated that most controllers commonly advise the relieving controller which aircraft are currently on frequency and which ones have not checked on, during the position relief briefing.

H. PERSONNEL INTERVIES – ZMP

5.0 Patrick Sullivan Operation Manager in Charge (OMIC)

The ATC Group interviewed Mr. Patrick Sullivan on November 06, 2009. Mr. Sullivan's operating initials were OH. Mr. Sullivan had no representation. In response to questions presented by the group, Mr. Sullivan provided the following information:

Mr. Sullivan's EOD with the FAA was March 31, 1987. After completing the FAA academy, Mr. Sullivan was assigned ZDV, where he had worked since June 1987. Mr. Sullivan was designated as an OMIC for area 5, and was temporarily designated as OMIC for area 6. Mr. Sullivan held no aeronautical ratings other than ATCS. Mr. Sullivan's immediate supervisor was Mr. Kelly Nelson. Mr. Sullivan was not required to hold a current medical certificate for this position.

Mr. Sullivan's work schedule consisted of Saturday and Sunday as RDO, Monday 0600 to1400, Tuesday 0600 to1400, Wednesday 1300 to2100, Thursday 1300 to2100, and Friday 0600 to1400. Mr. Sullivan stated that some of these shift times vary.

On Wednesday, October 21, 2009, Mr. Sullivan was scheduled to work the 1400 to 2200 shift, but he reported to the facility at 1000 to participate in a telephone conference call, followed by a management meeting, and subsequently followed by a team meeting. Mr. Sullivan stated these meetings lasted until approximately 1930. When asked to describe the events leading to the incident Mr. Sullivan explained that after the meeting concluded he went to the OMIC position to sign out for the day. At that time, Ms. Kathy Regan was staffing the OMIC position, so they discussed who would stay until the mid-shift crew came to relieve the OMIC. Mr. Sullivan and Ms. Reagan jointly decided that Ms. Regan would remain at the position. Mr. Sullivan stated Ms. Regan asked him to stay at the position for a brief period, because she needed a brief period away from the desk. Mr. Sullivan agreed to unofficially staff the watch desk. He stated that while Ms. Regan was out of the room, Ms. Theresa Cartier, the area 3 FLM, came to the watch desk to inform the OMIC of the NORDO status of NWA188. Mr. Sullivan wrote the information on a note pad that the OMICs commonly use. He said that Ms. Regan returned to the watch desk approximately 5 minutes later.

Mr. Sullivan does not recall if Ms. Cartier told him how long, NWA188 had been NORDO. He stated that if he had known the flight had been NORDO for as long as it was, he would have done things differently, as per procedures, and contacted the DEN.

Mr. Sullivan explained that when Ms. Cartier, who he believes to be a very experienced FLM, provided him with the information on NWA188, but did not seem concerned about the situation. He stated he was not overly alarmed because NORDO aircraft occurrences are common. Mr. Sullivan said that in hindsight, he made a mistake in judgment.

Mr. Sullivan stated it is common to have approximately 5 NORDO situations occur per shift, which requires a supervisor to get involved. He explained that during the hour prior to this interview, he had 3 such events that occurred.

When asked if he conducted a position relief briefing after Ms. Regan returned, Mr. Sullivan responded that he did not use the OMIC checklist to brief Ms. Regan because of the short duration of time he had been there. Mr. Sullivan stated that he believed that he recalled relaying the information on NWA188 to Ms. Regan prior to him departing the position. He stated had he known the unusually long length of time of the lost communications, he would have made absolutely sure Ms. Regan was aware of the situation.

Mr. Sullivan said he was not made aware there was an incident until either later that evening, or the next morning. Mr. Sullivan stated since he is the senior OMIC, he will often call in to the other OMIC on duty to see if everything is going all right or if they need anything.

When asked why he thought the area 5 FLM did not report NWA188 as a NORDO to the OMIC, Mr. Sullivan surmised that it may have been similar to what had occurred with him, and the FLM did not realize the significance of that NORDO situation.

When asked what had changed at the facility since this incident occurred, Mr. Sullivan stated that the policy on how to handle NORDO aircraft had been modified. He said the policy was changed to require a controller who becomes aware of a NORDO situation, to immediately advise the FLM, who must immediately advise the OMIC, who must immediately advise the DEN. Mr. Sullivan stated the workforce had been given this policy change notification at the 0800 and 1400 all hands briefings, in addition to the three-daily weather briefings. Mr. Sullivan stated that in addition to the NORDO policy changes, the OMIC position relief briefing would soon be recorded.

Mr. Sullivan explained that they had a volume control problem with some of the participants on the DEN hotline. The volume level of most of the participants are at a moderate level that the OMIC can hear, but there are some participants on the line that come through so loud that they became a major distraction to the operations at the desk. He said if the volume is turned down on the line, to regulate the loudest callers, the level is too low to hear everyone else. Mr. Sullivan states that the DEN hotline volume control needs to be regulated for all participants.

Mr. Sullivan stated that the DEN line service occasionally fails, without detection. He said that the DEN does not typically allow commercial calls from the OMIC, mainly because the purpose of the DEN is for everyone to get the information about a situation at the same time.

Mr. Sullivan stated that the training for the OMICs on the DEN phone line and procedures were

inadequate. He stated that the facility is exploring the possibility of a more efficient system that replace the DEN hotline.

5.1 Ms. Kathy Regan Operations Manager (OM)

The ATC Group interviewed Ms. Kathy Regan on November 6, 2009. Ms. Regan's operating initials were KE. Ms. Regan had no representation. In response to questions presented by the group, Ms. Regan provided the following information:

Ms. Regan's EOD with the FAA was March 17, 1988. After completing the FAA academy, Ms. Regan was assigned ZMP, where she had worked since June 1988. Ms. Regan was designated as an OMIC with administrative oversight for area 3. Ms. Regan held no aeronautical ratings other than ATCS. Ms. Regan's immediate supervisor was Mr. Kelly Nelson. Ms. Regan was not required to hold a current medical certificate for this position.
Ms. Regan's work schedule was Monday and Tuesday as RDO, Wednesday through Friday 1400 to 2200, and Saturday and Sunday 0600-1400.

On Wednesday, October 21, Ms. Regan was scheduled to work the 1400 to 2200 shift, but she reported to the facility at 1245 to participate in the weekly Business Management Team meeting, before going directly to her assigned duties on the OM position.

When asked to describe the event Ms. Regan stated that while working the OM position, Theresa Cartier, the area 3 FLM, came up to the OM desk and said she had an unusual situation for her to look at. She and Ms. Cartier did a quick look of sector 19 on the radar repeater located at the OM position and saw that NWA188 was approaching Minneapolis at FL370 and not talking to anyone. Ms. Cartier advised Ms. Regan that she was not going to participate in the 2000 weather briefing because she wanted to monitor the situation with NWA188. Ms. Regan asked Ms. Cartier how long NWA188 had been NORDO and while Ms. Regan did not recall exactly what was said, recalled that Ms. Cartier said that NWA188 had been NORDO for a while. Ms. Regan advised Ms. Cartier that she needed to call the DEN and advise them of the NORDO. Ms. Regan called the DEN and assuming that the DEN had already been advised of the NORDO, told the DEN that NWA188 was still NORDO. DEN advised that they were watching the situation. This was the first ATC notification to the DEN regarding NWA188. Shortly thereafter, Ms. Regan proceeded to area 2, sector 16 to see what the staffing was and noticed Mr. Kacher was working R16. Ms. Regan returned to the area weather briefing and directed the area 2 FLM, Mr. Anderson to monitor the NORDO situation and open the D16 position. Ms. Regan queried Ms. Cartier to what actions she had taken to try to reestablish communication with NWA188. Ms. Cartier advised that she had called NWA dispatch several times without result. Ms. Regan directed Dan Gagner, working sector 5, area 2, to start broadcasting on 121.5 for NWA188 to come up on the sector 16 frequency. At this time, there were two people on sector 16, an R and D controller and NWA188 had over-flown Minneapolis Airport to the northeast.

While away from the OM desk coordinating with the FLM's, the DEN had been calling for the OM. Ms. Regan asked the DEN to call offline so she could discuss the possible need for a fighter intercept. She wasn't sure about the security of the DEN and wanted to discuss the issue without all parties on the DEN being aware. In hindsight, Ms. Regan realized that the DEN was set up for

just such a purpose because all parties involved in an intercept decision are on the DEN circuit. In the future, she plans to use the DEN accordingly. DEN called off line and she advised them that ZMP will "need a fighter intercept or something" and was advised by DEN "they will take care of it."

NWA188 had over-flown Minneapolis Airport and was approaching ZMP area 1. Ms. Regan advised the FLM of area 1, Ms. Rolf of the situation and directed Ms. Rolf to open her positions and be ready to get aircraft out of the way of NWA188 and possible fighter scramble intercept of NWA188.

Ms. Regan returned to the OM desk and found the phone ringing and the DEN line calling for her. She answered the telephone first and the DEN, on the telephone, asked her if she needed fighter support. Before she responded to either DEN call, she was advised by the traffic manager, located close by, that communications with NWA188 had been reestablished. Ms. Regan advised the DEN, on the telephone, to cancel the fighters and was advised to come up on the DEN line. On the DEN line, the DEN asked Ms. Regan to determine that the cockpit of NWA188 was secure and what the situation was. Ms. Regan proceeded to sector 16 in area 2 and asked Mr. Kacher find out if the cockpit was secure and to find out what caused the situation. Mr. Kacher was advised by NWA188 that the cockpit was secure and the situation was caused by "cockpit distraction." Ms. Regan relayed this information to the DEN and was advised by the DEN that they needed more. Ms. Regan returned to the sector 16 controller and directed the controller to have NWA188 elaborate on the distractions. NWA188 responded that they were in a discussion on company policy and that was all they wanted to say at the time. Ms. Regan returned to the OM desk, advised the DEN of the pilot response and was advised by the DEN that they need some confidence turns to insure NWA188 was following ATC instructions. Returning to the R16 position, Ms. Regan directed Mr. Kacher to issue some confidence turns and Mr. Kacher replied that NWA188 had been taking the assigned turns so far. Ms. Regan directed a 360-degree heading which NWA188 took immediately and then another turn to the west. Ms. Regan returned to the OM desk, advised the DEN that NWA188 had taken all assigned turns and was inbound to Minneapolis Airport. At that point, Ms. Regan noticed that the DEN became busy with a lot of coordination standing down the fighter launch and other coordination and Ms. Regan was done coordinating on the DEN. NWA188 landed at Minneapolis Airport shortly thereafter.

No aircraft had to be re-routed because of NWA188's flight path.

After the incident, Ms. Regan tried to figure out what had happened and why she, as the OM, did not find out about the NORDO aircraft earlier. Ms. Cartier advised her that she had advised Mr. Sullivan, an OM that had briefly covered the OM desk while Ms. Regan was away. Ms. Regan acknowledged that it was possible that Mr. Sullivan had advised her of the NORDO but she did not recall being advised. Ms. Cartier also advised Ms. Regan after the fact that NWA188 had been NORDO in both area 5 and 2. Ms. Regan queried Mr. Hillerson, the area 5 FLM and was advised that NWA188 came in to ZMP airspace NORDO, approximately 20 minutes before she was made aware of the situation. Ms. Regan was not aware that NWA188 was NORDO until advised by Ms. Cartier.

When asked what corrective actions had been taken as a result of this incident, Ms. Regan stated that a new procedure had been put in place that stated if an OM is not signed on, then that OM is not to be at the OM desk. Ms. Regan stated that she expected more structured OM position relief briefs, and she had been told that they were considering recording the OM position relief brief, which may be in place as soon as next week.

5.2 Theresa Cartier Front Line Manager (FLM)

The ATC Group interviewed Ms. Theresa Cartier on November 6, 2009. Ms. Cartier's operating initials were TW. Ms. Cartier had no representation. In response to questions presented by the group, Ms. Cartier provided the following information:

Ms. Cartier's EOD with the FAA with the FAA was in 1972. She was employed at the flight inspection office from 1972 to 1976. In 1976 Ms. Cartier became an ATCS and was assigned to Minneapolis ARTCC, where worked 1976 to 1981. Ms. Cartier was re-hired in 1998, and had been assigned to Minneapolis ARTCC. She was qualified on 8R, 8D, 9R and 9D, and designated as a FLM for area 3. Ms. Cartier held no aeronautical ratings other than ATCS. Ms. Cartier's supervisor is Ms. Kathy Reagan.

Ms. Cartier's medical certificate was current with a requirement to wear eyeglasses while providing ATC services. Ms. Cartier wore her eyeglasses while on position that day.

Ms. Cartier's work schedule consisted of Monday and Tuesday as RDO, Wednesday 1500 to 2300, Thursday 1300 to 2100, Friday 1300 to 2100, Saturday 0700 to 1500, and Sunday 0600 to 1400.

On October 21, 2009, Ms. Cartier worked her regular scheduled shift of 1500 to 2300, and was assigned on area 3 FLM position. When asked to describe the events leading to the incident Ms. Cartier stated she became aware of NWA188 in the area when she overheard a controller relaying a message to NWA 188 through another Northwest aircraft. Ms. Cartier called Northwest dispatch to request that they contact NWA188 via ACARs. Northwest dispatch advised that they had just sent NWA188 another ACARs message with a different frequency.

Ms. Cartier recognized that NWA188 was NORDO and went to inquire if the OMIC, Mr. Pat Sullivan, was aware of the NORDO status of NWA188. Mr. Sullivan was not aware and Ms. Cartier advised Mr. Sullivan that NWA188 had been NORDO for a while. She expected that Mr. Sullivan would have been aware.

Ms. Cartier called Northwest dispatch when NWA188 was 50 miles southwest of Minneapolis Airport and asked if they had made contact with NWA188. Northwest dispatch replied that they had not and would send another SELCAL message.

Ms. Cartier returned to the OMIC position and advised OMIC, Ms. Kathy Regan, that NWA188 was still NORDO. Ms. Regan responded that she was not aware of NWA188 NORDO. Ms

Regan then called up the NWA188 data block via a "SEE ALL" message on the OMIC radar display.

Ms. Cartier contacted Minneapolis Approach Control to point out NWA188 as the flight approached their boundary at flight level 370. Minneapolis Approach Control advised that they were aware of NWA188. Ms. Cartier assumed that the Minneapolis Airport Traffic Management Unit had informed Minneapolis Approach Control about the NWA188 NORDO.

Ms. Cartier called Northwest dispatch again to ask if contact had been made. Northwest dispatch advised that they were very concerned about the flight and that no contact had been made. Ms. Cartier observed the controller making point outs to appropriate sectors and handing off NWA188 to sector 16.

Ms. Cartier was asked if she had received a briefing from the Area 5 FLM on NWA188, and she responded that she had not. Ms. Cartier reported that sector 19 was notified of NWA188 NORDO by sector 29.

Ms. Cartier was asked what training had resulted from this event. She stated the Operations Managers had briefed all controllers on expectations for handling NORDO events.

5.3 Viki Rolf — Front Line Manager (FLM)

The ATC Group interviewed Ms. Viki Rolf on November 6, 2009. Ms. Rolf's operating initials were VI. Ms. Rolf had no representation. In response to questions presented by the group, Ms. Rolf provided the following information:

Ms. Rolf's EOD with the FAA was December 07, 1990. After completing the FAA academy, she transferred to Minneapolis ARTCC where she worked from 1995 to 1999. Prior assignments included ATCS at Boston ARTCC until from 1999 to 2005, and Traffic Management Coordinator (TMC) at Boston ARTCC from 2005 to 2008. Ms. Rolf had been working at Minneapolis ARTCC since 2008, and was qualified on the sect 13R and D positions and was designated as an area 1 FLM. Ms. Rolf held no aeronautical ratings other than ATCS. Her immediate supervisor was Mr. Antonio Postiglione. Ms. Rolf's medical certificate was current with a requirement to wear eyeglasses while providing ATC services. Ms. Rolf wore her eyeglasses while on position on October 21, 2009.

Ms. Rolf's work schedule consisted of RDO on Sunday and Monday, 1500 to 2300 on Tuesday and Wednesday, 1100 to 1900 on Thursday and Friday, and 0600 to 1400 on Saturday. Ms. Rolf stated she had not worked overtime in years, but worked credit hours for ERAM scheduling to cover extra duties and for one on one supervisory staffing. She worked less than 5 credit hours per pay period.

On October 21, 2009, Ms. Rolf worked her regular scheduled shift of 1500 to 2300, and was assigned to FLM area 1 position. When asked to describe the events leading to the incident Ms. Rolf stated it was quiet shift and she was going to the printer to update a military sheet when she overheard a controller telling their supervisor about the NORDO NWA188 who was coming up on Minneapolis. Ms. Rolf returned to her area, quick looked sector 16, saw NWA 188 with

NORDO in the fourth line data block and did a flight plan read-out. Ms. Rolf then told Mr. Hunsinger in her area to plan view display (PVD) the data block for NWA188. Ms. Rolf advised Mr. Hunsinger that the NWA188 is NORDO. Mr. Hunsinger asked Ms. Rolf what she wanted him to do if the NWA188 come up on his frequency. She said see if he is ok and if he wants to turn back to Minneapolis Airport.

Ms. Rolf paged area 1 controllers to the radar room to staff position that may be required to handle the developing situation.

Ms. Rolf asked Mr. Anderson, the area 2 FLM, if he had any more information on the NWA188. Mr. Anderson stated that NWA188 had been NORDO for a while.

Ms. Regan came to Ms. Rolf to ask her if she knew about NWA188. Ms. Rolf responded that she did, and had people in place. About this time, Mr. Hunsinger and Mr. Schwietz both advised that they were in communication with NWA188. Ms. Rolf immediately relayed to Ms. Regan that ZMP was in contact with NWA188. Ms. Regan told Ms. Rolf to ask if the cockpit was secure. Ms. Rolf relayed to Ms. Regan that he pilots reported that the cockpit was secure. Then Ms. Regan directed Ms. Rolf to query the pilots of NWA188 the reason for the NORDO. When Ms. Rolf went to ask Mr. Hunsinger the question he interrupted her and said we already transferred communications with NWA188 to sector 16. Ms. Rolf advised Ms. Regan of the frequency change.

When asked how often she sees a NORDO aircraft, Ms. Rolf stated in the summer she might get one NORDO that she would have to reach out for, per shift. The NORDOs are seasonal. During this time she may get one every couple of days. She stated other areas might get more NORDOs than her area because their areas have more frequencies, narrower airspace and deal with smaller airplanes. Ms. Rolf stated they might use other aircraft, call operations and use the standby frequencies to pick up NORDOs. She said they might also call airports and airport managers to see if they can find a plane. Ms. Rolf said you could not tell when the 5-minute rule for calling the DEN begins. She said she might try to go through a mental checklist, which may eat up time, to confirm if an aircraft is NORDO.

Ms. Rolf stated some people use to highlight the aircraft's data block as a technique to indicate an aircraft had checked on, but she knows that most of the employees use the slant zero technique. Other employees use their memory. Ms. Rolf stated we do not have good tools to indicate that an aircraft had checked on. Sometimes you do not know an aircraft is NORDO until you go to switch him. It is hard to keep up when there is bad weather and the sector is busy.

Ms. Rolf stated she did not think using the flight progress strips to document when an aircraft had checked on frequency or been directed to contact another controller was a good idea either because it took your eyes off the scope. She also thinks highlighting the data block is too distracting. She would like to see a tool that is not distracting. Ms. Rolf does not think the FAA should mandate how each person should manage his or her data blocks but she hopes that a fix will be developed to correct this issue.

Ms. Rolf stated that since 9-11, ATC needed to be more proactive and have the foresight to stay on top of things. The employees and pilots are being more cautious and have heightened awareness since this incident of October 21, 2009. Ms. Rolf says her facility had recently received CBI/MBI training on NORDOs and suspicious aircraft.

Ms. Rolf uses the checklist during position relief briefing so that she would not miss a critical element. When her area employees get to the part of the checklist that says traffic, they point to each aircraft and states if the aircraft is on frequency or not.

When Ms. Rolf had to reach out to locate a NORDO aircraft that is in her area, her instructions are to have the aircraft come up on one of the frequencies in her area. She does this to ensure the process is followed up on or closed. Ms. Rolf believed commercial pilots are pretty good with being where they're suppose to be so but the air traffic facilities could try minimizing the distractions in the control room areas.

Ms. Rolf explained that managers do not know too much about the DEN or how the DEN can assist ATC therefore controllers are hesitant to call the DEN.

5.4 Earl Blake Certified Professional Controller (CPC)

The ATC Group interviewed Mr. Earl Blake on November 6, 2009. Mr. Blake's operating initials were BB. Mr. Blake was represented by Mr. Craig Boehne, ZMP NATCA. In response to questions presented by the group, Mr. Blake provided the following information:

Mr. Blake's EOD with the FAA was October 5, 1993. Mr. Blake worked at Kansas City ARTCC from 1993 to 1998, and had worked at Minneapolis ARTCC since April 1998. Mr. Blake was qualified on all positions in area 5. Mr. Blake held no aeronautical ratings other than ATCS. Mr. Blake was a graduate of Marc School located in Eden Prairie, MN. His immediate supervisor was Mr. Duane Hillerson. Mr. Blake's medical certificate was current with a waiver for the medication Coumadin.

Mr. Blake's work schedule consisted of Sunday and Monday as RDO, Tuesday 1600 to 2400, Wednesday 1500 to 2300, Thursday 1300 to 2100, Friday 0800 to 1600, and Saturday 0630 to 1430. Mr. Blake stated he rarely worked overtime, and the last time he worked overtime was April 2009.

On Wednesday, October 21, 2009, Mr. Blake worked his regular scheduled shift of 1500 to 2300, and was assigned on 29R position. When asked to describe the events leading to the incident Mr. Blake stated that ZDV sector 9 called and asked if NWA188 had come over to him, which he responded negative. Mr. Blake said that a few minutes later, ZDV sector 9 called again, and stated NWA188 was NORDO and they (ZDV) had gone through company dispatch to get in touch with the aircraft. He said he informed the supervisor, Mr. (Duane Hillerson) that NWA188 was NORDO. After a few minutes had passed and NWA188 had not contacted him, Mr. Blake stated he informed his supervisor that NWA188 was still NORDO and he (Mr. Hillerson) should go through the dispatcher. Mr. Blake said he suggested to the supervisor that maybe he (Mr. Hillerson) was getting the wrong dispatcher since Northwest Airline and Delta Airlines had just merged. Mr. Blake stated that he found out that assumption was not the case. Mr. Blake stated he

informed his supervisor that he would be coordinating the NORDO with the area 3 controller, and Mr. Hillerson should tell the area 3 supervisor. Mr. Blake explained he typed NORDO in line 4 of the data block when NWA188 entered his airspace. Mr. Blake noticed that the remark section also included the words "Delta colors," but that remark was intended primarily for the tower. Mr. Blake watched the flight cross through the sectors, and saw that when NWA188 crossed Redwood Falls he was still NORDO. Mr. Blake stated he observed sector 13 taking the handoff from sector 19, so he called ZDV sector 9 to check to see if NWA188 was on their frequency (126.32). He said that "NORDO" stayed in the data block until communications were reestablished with NWA188.

When asked what technique he used to indicate he was in communication with an aircraft, Mr. Blake stated he highlighted data blocks when he talked to an aircraft, and de-highlighted that data block when he was not.

When asked how often he encountered NORDO aircraft situations, Mr. Blake stated the frequency of these events varied, but generally it was once a week, maybe. Mr. Blake said he did not see a trend in NORDO aircraft in the national airspace system (NAS). Mr. Blake stated that aircraft normally come up on their frequency after receiving an ACARS message.

When asked if he attempted to contact NWA188 on 121.5, Mr. Blake stated he did not have that capability on his position, and since the nearest transmitter was Farmington, MN, it would not have done any good because the transmitter was out of range for aircraft working in his sector.

5.5 Dwight Anderson Front Line Manager (FLM)

The ATC Group interviewed Mr. Anderson on November 6, 2009. Mr. Anderson's operating initials were AH. Mr. Anderson had no representation. In response to questions presented by the group, Mr. Anderson provided the following information:

Mr. Anderson's EOD with the FAA was March 1974. After completing the FAA academy, Mr. Anderson transferred to Chicago ARTCC where he worked from May 1974 to August 1981. Mr. Anderson was re-hired in October 1998, and had been assigned to Minneapolis ARTCC. He was qualified on Sector 10 R/D and designated as a FLM, area 2. Mr. Anderson held numerous aeronautical ratings other than ATCS. His immediate supervisor was Mr. Greg Smith. Mr. Anderson stated his medical certificate was current with a requirement to have eyeglasses in his possession while providing ATC services. Mr. Anderson wore his eyeglasses while on position that day.

Mr. Anderson's work schedule consisted of Sunday and Monday as RDO, Tuesday 1500 to 2300, Wednesday 1300 to 2100, Thursday 1100 to 1900, Friday 0600 to 1400, and Saturday shifts vary, but were commonly either 0600 to 1400, or a midnight shift. Mr. Anderson did not work overtime.

On October 21, 2009, Mr. Blake worked his regular scheduled shift of 1300 to 2100, and was assigned to the FLM area 2 position. When asked to describe the events leading to the incident Mr. Anderson stated that he was at the weather briefing on the control room floor when Ms. Regan, the OMIC came to advise him that he needed to go down to Area 2. When Mr. Anderson

arrived at Area 2, he observed NWA188 transiting Sector 15 pointed out to Sector 16. Mr. Anderson asked the ATCS, Mr. Mike Kacher, working Sector 16R if was able to talk to NWA188. Mr. Kacher said he had already tried but no contact.

Mr. Anderson said he then called Delta Operations to see if they had been able to contact NWA188. Delta Operations said that they had made several attempts through ACARS and SELCAL but had received no response. Delta Operations expressed they were very concerned. Mr. Anderson thought this might be a problem situation to the extreme and told Ms. Regan that she might need military intervention.

Mr. Anderson asked Mr. Kacher to have the company aircraft, NWA1510, attempt to contact NWA188 on 133.45 and see if the aircraft will come up. If NWA1510 was successful, have NWA188 go to 123.72 (Sector 13). Then NWA1510 reported they were successful and relayed the message. Sector 13 established radio contact with NWA188 and began turning the aircraft toward Minneapolis Airport.

Mr. Kacher received a handoff on NWA188 from sector 13. Mr. Kacher asked NWA188 if he had enough fuel and the pilot stated they had about 2 hours of fuel left. Mr. Kacher then asked if there were any problems and the pilot stated “cockpit distractions.”

Ms. Regan instructed Mr. Anderson to have the ATCS, Mr. Kacher; issue NWA188 turns to verify the pilot will accept headings away from the airport due to military concerns. Headings were issued at the discretion of Mr. Kacher. Mr. Kacher issued NWA188 two turns to which NWA188 complied. It was decided to issue the GPHER 5 arrival to Minneapolis Airport in order to keep NWA188 clear of traffic in holding over Eau Clair.

Mr. Anderson suggested that if center frequencies were place on the aeronautical charts then the pilot could reference the radio frequency to his location.

5.6 Duane Hillerson Front Line Manager (FLM)

The ATC Group interviewed Mr. Hillerson on November 7, 2009. Mr. Hillerson’s operating initials were ZH. Mr. Anderson had no representation. In response to questions presented by the group, Mr. Hillerson provided the following information:

Mr. Hillerson started work with the FAA on July 4, 1984. After completing the FAA academy, Mr. Hillerson worked at Albuquerque ARTCC (ZBQ) from October 1984 to April 2004. Mr. Hillerson had been at ZMP from April 2004 to present. He was qualified on sector 29 R/D, and designated as FLM area 5, and OMIC for midnight shifts. In addition to the ATCS rating, Mr. Hillerson held a commercial multi-engine instrument rating, which was not current. Mr. Hillerson’s supervisor was Patrick Sullivan. His medical certificate was current with a restriction to have glasses on and in his possession while performing ATC duties. Mr. Hillerson wore his eyeglasses while on position that day.

Mr. Hillerson’s work schedule consisted of a Sunday and Monday as RDO, Tuesday and Wednesday 1500 to 2300, Thursday 1300 to 2100, Friday 1000 to 1800, and Saturday 0600 to 1400.

On Wednesday, October 21, 2009, Mr. Hillerson worked his regular scheduled shift of 1500 to 2300, and was assigned FLM area 5 position. When asked to describe the events leading to the incident, Mr. Hillerson stated that at around 8:00 pm on October 21st, he was working as the FLM in area 5, when Mr. Blake, working sector 29, advised him that he (Mr. Blake) had a NORDO aircraft (NWA188) from ZDV and that they were still looking for him. Mr. Hillerson called NWA dispatch on a commercial non-recorded landline and was advised that they would send a message right up to NWA188. Mr. Hillerson waited to see if NWA188 would come up on the frequency but that did not happen. After 8 to 10 minutes, Mr. Blake handed NWA188 off to sector 19, Area 3 after coordinating that the aircraft was NORDO. Mr. Hillerson advised the area 3 FLM. Ms. Cartier, that NWA188 was NORDO. Mr. Hillerson stated that he was rather nonchalant about the issue and noted that Ms. Cartier was getting a brief from the sector 19 controller on the NORDO at the same time. Mr. Hillerson had not called the OM at the watch desk to report the NORDO, as required, and did not advise Ms. Cartier that he had not advised the OM of the NORDO. Mr. Hillerson expected NWA188 to come up on the frequency after contact NWA dispatch, as had happened numerous times before. Expecting the issue to resolve itself shortly, Mr. Hillerson discounted the event and went about his duties. The R29 controller, Mr. Blake continued to track NWA188 and called ZDV, sector 29 to find out what the last frequency assigned to NWA188 and relayed that information to ZMP R19. Mr. Hillerson did not know how long NWA188 had been NORDO other than the time NWA188 had been in area 5 airspace. Mr. Hillerson did not receive a call from ZDV advising of the NORDO situation.

The following day, October 22, a mandatory briefing for all management and controllers was issued reiterating the need and requirement to report NORDO aircraft in a timely manner.

Mr. Hillerson commented that the number and frequency of NORDO aircraft had increased lately and attributed it to complacency on the part of pilots and controllers. There was a time when a NORDO aircraft was a big deal and a controller had to work through past sectors to find the last frequency assigned. Today, it is very easy to contact company dispatch and have the aircraft come up the appropriate frequency making frequency discipline for air carriers less of an issue. An additional causal factor contributing to the increase in NORDO situations is that FAA radio transmitters have been depowered from 50 watts to 10 watts, deceasing the range and reach of frequencies. This had resulted in aircraft flying out of radio coverage more frequently.

5.7 Dennis Hunsinger (DT) Certified Professional Controller (CPC)

The ATC Group interviewed Mr. Hunsinger on November 7, 2009. Mr. Hunsinger's operating initials were DT. Mr. Hunsinger was represented by Ms. Renae Hultgren, ZMP NATCA. In response to questions presented by the group, Mr. Hunsinger provided the following information:

Mr. Hunsinger's EOD with the FAA was January 13, 1988. After completing the FAA Academy, Mr. Hunsinger was assigned to ZMP, where he had worked since April 1988. Mr. Hunsinger was qualified on sectors 1, 2, 3, 4, 12 and 13, R and D sides. Mr. Hunsinger held no aeronautical ratings other than ATCS. His immediate supervisor was Ms. Viki Rolf. Mr. Hunsinger's medical certificate was current with a restriction to have eyeglasses in his possession while performing ATC duties. Mr. Hunsinger. Mr. Hunsinger wore his eyeglasses while on position that day.

Mr. Hunsinger's work schedule consisted of Monday and Tuesday as RDO, Wednesday 1500 to 2300, Thursday 1300 to 2100, Friday 0700 to 1500, Saturday 0515 to 1315, and Sunday 0000 to 0800.

On Wednesday, October 21, 2009, Mr. Hunsinger worked his regular scheduled shift of 1500 to 2300, and was assigned to sector 13R position. When asked to describe the events leading to the incident, Mr. Hunsinger stated he was working sector 13R by himself, and the traffic was routine. Mr. Hunsinger stated that Ms. Viki Rolf, the supervisor, came over and gave him a data block on an aircraft that was over Eau Claire. Mr. Hunsinger said that Ms. Rolf briefed him that NWA 188 was NORDO, and was pointed toward his airspace. Mr. Hunsinger said that Ms. Rolf assigned a 13D controller to that position so they could get ready for the aircraft. The 13D controller asked him to get an aircraft to try to contact NWA188 on a frequency, which was one he was not familiar with, and to come up on my frequency. Mr. Hunsinger stated he asked a Northwest aircraft to try to talk to NWA188 on that frequency, and within 5 minutes, NWA188 contacted him on his frequency.

Mr. Hunsinger stated that when NWA188 contacted him, he requested clearance for Minneapolis Airport. Mr. Hunsinger stated he then asked NWA188 his fuel status and he said fuel was OK. Mr. Hunsinger stated he turned the aircraft to a southerly heading, and then coordinated with sector 16 in order to find out how they wanted him to do with the aircraft. Mr. Hunsinger stated the supervisor told him to ask NWA188 if his cockpit was secure. NWA188 responded that the cockpit was secure. Mr. Hunsinger cleared NWA188 to Minneapolis (MSP) via radar vectors. He then coordinated a handoff to sector 16R and switched communications to them.

Mr. Hunsinger stated it was not uncommon for an aircraft to be in his sector and not on frequency. Mr. Hunsinger stated that most controllers handled NORDOs without assistance, but if they could not reach them, they contacted the supervisor. Mr. Hunsinger stated that he gets a couple of NORDOs a day, but normally they contact him after they get an ACARS.

5.8 Michael Kacher Certified Professional Controller (CPC)

The ATC Group interviewed Mr. Kacher on November 7, 2009. Mr. Kacher's operating initials were KR. Mr. Kacher was represented by Renae Hultgren, NATCA. In response to questions presented by the group, Mr. Kacher provided the following information:

Mr. Kacher's EOD with the FAA was June 30, 1986. After completing the FAA academy, Mr. Kacher was assigned to Oakland ARTCC, where he worked from October 1986 to July 2004. Mr. Kacher worked at ZMP since 2004, and was qualified on sectors 5, 6, 10, 15, 16, 21, and 22.

Mr. Kacher's work week consisted of Monday and Tuesday as RDO, Wednesday 1400 to 2200, Thursday 1330 to 2130, Friday 0700 to 1500, Saturday 0600 to 1400, and Sunday 2354 to 0800; with a 6 minute overtime overlap for position relief briefing. Mr. Kacher worked approximately 16 hours overtime this year. Mr. Kacher held a commercial pilot and instrument rating, but both were not current. His immediate supervisor was Mr. Dwight Anderson. Mr. Kacher's medical certificate was current with a restriction to have eyeglasses in his possession while performing ATC duties. Mr. Kacher wore his eyeglasses while on position that day.

On Wednesday, October 21, 2009, Mr. Kacher worked his regular scheduled shift of 1330 to 2130, and was assigned to sector 16R position. When asked to describe the events leading to the incident Mr. Kacher stated he was working sector 16R, and he was metering and holding. Mr. Kacher said that sector 19R controller called, and told him NWA188 was NORDO and was getting close to the airport. Mr. Kacher thought he would not see or talk to NWA188 because normally an aircraft landing in Minneapolis airport would have been below his sector. Mr. Kacher took the handoff on NWA188, and based on his position, realized that the aircraft was going to over-fly his destination. Mr. Kacher made a couple of transmissions, in an effort to contact the aircraft, but received no response. He then contacted another NWA aircraft to ask it to relay a message to NWA188. Mr. Kacher stated that his supervisor, Mr. Anderson, gave him a frequency to pass to that aircraft, which may have been the last frequency NWA188 was on before going NORDO. Mr. Kacher stated that he gave that frequency to the NWA relay aircraft, and asked him to go to that frequency and see if NWA188 is there, and if so put him on the assigned frequency. A couple minutes later Mr. Kacher overheard sector 13 say he's (NWA188) on my frequency. Mr. Kacher said that management and his peers decided it would be better to send NWA188 over to a different arrival, through sector 10 (the GEP5). Mr. Kacher heard sector 10 was not busy. Mr. Kacher provided sector 13 a heading to assign NWA188. Ms. Kathy Regan, the OM, told Mr. Kacher to ask the pilot on NWA188, why they were NORDO. Mr. Kacher asked the question and NWA188's reply was they had a distraction in the cockpit. Mr. Kacher said the OM told him to tell the pilot his previous answer was not good enough and we need a better answer. Mr. Kacher could not remember the pilot's second response but he remembers the OM saying that response was not good enough either. Mr. Kacher stated that the OM told him to put NWA188 on a 360 heading. Mr. Kacher complied, and then gave NWA188 another heading to see if he would comply. The pilot complied with both headings. Before handing off the aircraft, Mr. Mr. Kacher descended NWA188 to FL240. After the handoff was accepted, Mr. Kacher switched NWA188 to the next sector's frequency. Mr. Kacher stated he was relieved from his position at some point and was asked to fill out a statement.

Dan Bartlett
AS-30