Submission of Delta Air Lines
To the
National Transportation Safety Board

Northwest Flight 188
Minneapolis, Minnesota
October 21, 2009
DCA10IA001

TABLE OF CONTENTS

I. INCIDENT……..3
II. EXECUTIVE SUMMARY……...3
III. AIRCRAFT COMMUNICATIONS ADDRESSING AND REPORTING SYSTEM…..3
IV. DISPATCH RESPONSE TIME ……4
V. VALIDATION OF CREW ACTIVITY……..5
VI. SUMMARY……...5
VII. REFERENCE A……6
VIII. REFERENCE B……7
IX. REFERENCE C……...9

I. INCIDENT

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 its 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 Regulations Part 121 from San Diego International Airport (SAN), San Diego, California, to Minneapolis-St Paul International/Wold-Chamberlain Airport (MSP), Minneapolis, Minnesota.

II. EXECUTIVE SUMMARY

Delta Air Lines was invited to participate in this investigation because Northwest Airlines was a wholly-owned subsidiary of Delta at the time of the incident. Delta and Northwest received final authorization from the Federal Aviation Administration to fly under a single operating certificate on December 31, 2009.

As a party to the investigation Delta Air Lines is submitting facts, conditions, and circumstances about the incident for consideration as the final report is developed. The content of the submission attempts to communicate the following: 1) The A320 Aircraft Communications and Reporting Systems (ACARS) and associated improvements that Delta Air Lines is actively implementing (system modification adding an aural cockpit alert), that could prevent a future occurrence. 2) Actions that Delta Air Lines performed to ensure that Northwest dispatchers could be contacted without delay, and the sequence of communications that occurred during the event which led to a delay in contacting the Northwest dispatcher. 3) Lack of validation of crew activity during the portion of the flight where radio contact was lost.

III. AIRCRAFT COMMUNICATIONS ADDRESSING AND REPORTING SYSTEM (ACARS) Delta Air Lines-Initiated Improvements

Within the domestic United States ACARS messages sent via dispatch are distributed through a VHF ground network to ensure aircraft receipt. Currently, all Delta Airbus A320's display a flashing ACARS MSG or ACARS CALL on the upper ECAM (E/WD) memo section when a dispatch message is received.[1]

The ACARS system incorporates the memo display on the E/WD display to alert the crew of the ACARS status. The following messages may be displayed:

[1] Reference Attachment A: NWA A319 A320 AOM Vol. II Page 23.15.49

Messages	Meaning
ACARS CALL	An ACARS message has been received that requests a voice communication on a specific radio frequency. The VOICE GO AHEAD advisory appears on ACARS.
ACARS MSG	An ACARS message has been received. The MESSAGE WAITING, LOAD REVISION, or GATE REVISION advisory appears on ACARS.
ACARS STBY	Indicates that ACARS is unable to communicate with the data-communications service provider The NO COMMUNICATION advisory appears on ACARS.
VHF 3 VOICE	An ACARS message has been received that requests a voice communication on a specific radio frequency. The VOICE GO AHEAD advisory appears on ACARS.

At the time of the incident there was no aural alert associated with these message displays on A320 airplanes nor was the Company aware of any incident on the A320 fleet where pilots failed to timely observe an ACARS message. Following the Northwest 188 incident Delta Air Lines has identified an opportunity to improve message alerting between Flight Dispatchers and Airbus A320/319 Pilots by enabling an ACARS aural alert for this fleet. This capability was not available at the time the aircraft were acquired by Northwest Airlines. Once required ground-based Information Technology (IT) development is completed, the Dispatcher will be able to sound a cockpit aural alert when sending an ACARS uplink message. The enhanced functionality compliments the existing A320's memo on the E/WD display on the upper ECAM.

When the avionics upgrade project is complete, the system will take advantage of a unique aural alerting option available to Delta Operations Control Center personnel to specify an aural alert be included in certain uplink messages.

IV. DENVER CENTER - DISPATCH RESPONSE TIME

On October 9, 2009, the Northwest Airlines dispatch facility relocated from Minneapolis, Minnesota to Atlanta, Georgia. Prior to the dispatch facility relocation, Delta notified all Air Traffic Control facilities of the new telephone contact numbers for Northwest dispatch. The telephone contact information was distributed via the Air Transport Association (ATA) desk at the FAA Command Center and the FAA's Regional Directors of Traffic Operations. The numbers provided to ATC are not equipped with automated menus and will always be greeted by a live dispatcher. The number is monitored 24 hours a day. Should the primary number provided be unavailable, the phone system will automatically forward callers to an alternate number with a live dispatcher.

The ATC Factual Report stated, *"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."[2]

As stated above, Denver Center (ZDV) was provided the correct telephone number to contact NWA dispatch; however the controller utilized the old, inactive number which is not a recorded line. Upon contact with NWA dispatch the call was received at the Assistant Dispatcher's phone line. The Air Traffic Controller did not indicate difficulty or issues regarding communications with NWA dispatch at the time of the call. Further, the assistant dispatcher did not recall placing the caller on hold and stated that it would not be normal practice to do so without first identifying the caller and issue. Since the conversation between the ZDV controller and Northwest dispatcher was not recorded, it was not possible to fully understand the facts and circumstances surrounding the difficulty stated in the ATC controller's Personnel Statement.[3]

In contrast, during the incident Minneapolis Center controllers did not experience difficulty or delay contacting NWA Dispatch with requests to contact NW188. Throughout the incident, Minneapolis Center spoke directly with NWA Senior Dispatchers on at least four separate occasions relaying center frequency change requests.

V. VALIDATION OF CREW ACTIVITY

Factual information obtained through forensic examination of the pilots' laptop computers could have assisted the safety investigation by validating crew activity during the portion of the flight where radio contact was lost. Accordingly, Delta Air Lines submitted a request to the NTSB on October 29, 2009, that the pilots' laptop computers undergo forensic examination. Without such forensic examination the Board was not able to validate the specific laptop activities reported by the pilots.

VI. SUMMARY

The intent of this submission is to provide the facts, conditions, and circumstances that Delta Air Lines would like the NTSB to consider as the final report is developed. Delta fully supports the investigation of this incident with the sole purpose of preventing a future occurrence, and appreciates the opportunity to submit these comments.

[2] Reference B ATC Factual Report DCA10IA001 Pages 5 & 6
[3] Reference C ATC 3 - Attachment 4 - Denver ARTCC Controller Statements Page 5

REFERENCE A

COMMUNICATION
ACARS

A-319/320

23.15.49

Nov 15, 2002

E/WD Messages

Description

The ACARS system incorporates the memo display on the E/WD display to alert the crew of the ACARS status.

The following messages may be displayed:

Message	Meaning
ACARS CALL	An ACARS message has been received that requests a voice communication on a specific radio frequency. The VOICE GO AHEAD advisory appears on ACARS.
ACARS MSG	An ACARS message has been received. The MESSAGE WAITING, LOAD REVISION, or GATE REVISION advisory appears on ACARS.
ACARS STBY	Indicates that ACARS is unable to communicate with the data-communication service provider. The NO COMMUNICATION advisory appears on ACARS.
VHF 3 VOICE	An ACARS message has been received that requests a voice communication on a specific radio frequency. The VOICE GO AHEAD advisory appears on ACARS.

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

REFERENCE C

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

PERSONNEL STATEMENT

1. NAME OF REPORTING FACILITY:	2. REPORT NUMBER:
Denver ARTCC	ZDV-ARTCC-0134
3. AIRCRAFT IDENTIFICATION AND TYPE: NWA188, A320	
4. LOCATION OF ACCIDENT/INCIDENT: Goodland, KS	5. DATE/TIME OF ACCIDENT/INCIDENT (UTC): October 21, 2009, 2356 UTC
6. EQUIPMENT ATTACHMENT: ☐ YES ☐ NO	
7. NAME (OPERATING INITIALS): Alex Herda (AH)	8. TITLE: SATCS
9. POSITION AND TIME (UTC): OSIC5 O 2248-0049 UTC	

10. COMPLETE IN ACCORDANCE WITH FAA ORDER 8020.16, AIR TRAFFIC ORGANIZATION, AIRCRAFT ACCIDENT AND INCIDENT NOTIFICATION, INVESTIGATION, AND REPORTING, PARAGRAPH 91, FAA FORM 8020-26, PERSONNEL STATEMENTS. THE PURPOSE OF THIS STATEMENT IS TO PROVIDE ANY FACTS WITHIN YOUR PERSONAL KNOWLEDGE THAT WILL PROVIDE A COMPLETE UNDERSTANDING OF THE CIRCUMSTANCES SURROUNDING THIS ACCIDENT/ INCIDENT. SPECULATIONS, HEARSAY, OPINIONS, CONCLUSIONS, AND/OR OTHER EXTRANEOUS DATA ARE NOT TO BE INCLUDED IN THIS STATEMENT. THIS STATEMENT MAY BE RELEASED TO THE PUBLIC THROUGH THE FREEDOM OF INFORMATION ACT OR LITIGATION ACTIVITIES INCLUDING PRETRIAL DISCOVERY, DEPOSITIONS, AND ACTUAL COURT TESTIMONY. THIS STATEMENT IS TO BE HAND PRINTED AND SIGNED BY YOU, AND YOUR SIGNATURE BELOW CERTIFIES THE ACCURACY OF THIS STATEMENT. IT WILL NEITHER BE EDITED NOR TYPED AND, ONCE SIGNED, WILL CONSTITUTE YOUR ORIGINAL STATEMENT.

11. TEXT OF STATEMENT: ☑ ORIGINAL ☐ SUPPLEMENTAL

I, ALEX HERDA, WAS WORKING THE FRONT LINE MANAGER POSITION FOR AREA 5 ON OCTOBER 22, 2009, 0026 UTC, WHEN MICHAEL ROY CALLED ME FROM SECTOR 9 RADAR POSITION. MR. ROY TOLD ME TO GO THROUGH COMPANY TO HAVE NWA188 CONTACT MINNEAPOLIS CENTER (ZMP) ON 124.87. MR. ROY THEN INFORMED THE ZMP RECEIVING SECTOR THAT NWA188 WAS NOT IN CONTACT WITH AIR TRAFFIC CONTROL (NORDO) AND DENVER CENTER (ZDV) WAS CALLING COMPANY DISPATCH. I IMMEDIATELY TELEPHONED THE NORTHWEST AIRLINES DISPATCH VIA SPEED DIAL. I RECEIVED A RECORDED MESSAGE THAT THE TELEPHONE NUMBER HAD CHANGED. I WROTE DOWN THE NEW NUMBER AND DIALED IT. I LISTENED TO THE PHONE MENU AND PUSHED THE NUMBER FOR DISPATCH. THE LINE RANG MULTIPLE TIMES BEFORE I HUNG UP AND TRIED AGAIN. I GOT SOMEBODY ON THE LINE THE SECOND TIME, BUT HE IMMEDIATELY PUT ME ON HOLD. WHEN HE CAME BACK TO THE LINE, I REQUESTED THAT HE SEND A MESSAGE TO NWA188 TO CONTACT ZMP ON 124.87. HE SAID HE WOULD COMPLY.

12. SIGNATURE OF WITNESS: [redacted]

13. DATE OF SIGNATURE: 10/27/2009

FAA Form 8020-26 (06-03)