NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594

April 10, 2007

ATC GROUP FACTUAL REPORT
CHI06MA121

A. AIRCRAFT ACCIDENT

Location: Nogales, Arizona

Date: April 25, 2006

Time: 1041 Coordinated Universal Time[1]

Aircraft: OMAHA 10, a General Atomics Predator B Unmanned Aircraft (UA)

B. AIR TRAFFIC CONTROL GROUP

Chairman: Mr. Dan Bartlett
National Transportation Safety Board
Washington, D.C. 20594

Mr. Ken Hartenstine
Federal Aviation Administration
Washington D.C.

C. SUMMARY

On April 25, 2006, at about 0350 Mountain Standard Time, an unregistered MQ-9 (Predator B) aircraft, serial number BP-101, collided with the terrain approximately 10 nautical miles northwest of the Nogales International Airport (OLS), Nogales, Arizona.
The unmanned aircraft (UA), callsign OMAHA 10, was registered to the U.S. Customs and Border Protection (CBP) agency. The public use flight was operating in visual meteorological conditions. An instrument flight rules flight plan had been filed and activated for the flight. The UA sustained substantial damage. There were no injuries to persons on the ground. The flight originated from the Libby Army Airfield (FHU), Fort Huachuca, Sierra Vista, Arizona[2]. There were no injuries to persons on the ground.

The UA was being flown from a ground control station (GCS) located at FHU. The GCS

[1]All times are expressed in Coordinated Universal Time (UTC) unless otherwise noted.
[2] Fort Huachuca, Sierra Vista, Libby Army Airfield, Libby AAF, and FHU are synonymous throughout this document.

contains two nearly identical consoles, Pilot Payload Operator (PPO)-1, and PPO-2. During a routine mission, a certified pilot controls the UA from the PPO-1 console and the camera payload operator (typically a U.S. Border Patrol Agent) controls the camera from PPO-2. The aircraft controls (flaps, stop/feather, throttle, and speed lever) on PPO-1 and PPO-2 are identical. However, when control of the UA is being accomplished from PPO-1, the controls at PPO-2 are used to control the camera.

The pilot reported that during the flight the console at PPO-1 "locked up", prompting control of the UA to be switched to PPO-2. Checklist procedures state that prior to switching operational control between the two consoles, the pilot must match the control positions on the new console to those on the console, which had been controlling the UA. The pilot stated in an interview that he failed to do this. The result was that the stop/feather control in PPO-2 was in the fuel cutoff position when the switch over from PPO-1 to PPO-2 occurred. As a result, the fuel was cut off to the UA when control was transferred to PPO-2.

The pilot stated that after the switch to the other console, he noticed the UA was not maintaining altitude but did not know why. As a result the electronics technician, co-located with the pilot, advised the pilot to shut down the GCS so that the UA would enter its lost link procedure. This action should have resulted in the UA climbing to 15,000 feet above mean sea level[3] and to fly a predetermined course until contact could be established. With no engine power, the UA continued to descend below line-of-site communications and further attempts to re-establish contact with the UA were not successful.

D. DETAILS OF THE INVESTIGATION

The air traffic control group convened at the Albuquerque Air Route Traffic Control Center (ARTCC)[4] on April 9, 2007 where we met with Mr. Terry Locke, Air Traffic Manager; Mr. Larry Rolls, Support Manager Quality Assurance; Mr. Mark Spaulding, Support Manager; Mr. Jon Semanek, Support Manager Airspace and Procedures; Mr. Dave Souder, AJO Evaluations and Investigations; Mr. Jeff Rich, ATO-S Investigations; and Ms. Brenda Stallard, ATO-S Investigations. The ATC Group Chairman advised the ZAB staff that the team's objective was to determine ATC complicity and evaluate potential for a systemic failure regarding UAS operations in the NAS. Mr. Semanek provided a 30-minute briefing/PowerPoint presentation regarding the Certificate of Authorization (COA)[5] that had been provided as mandatory training to all controllers in March of 2006. This briefing was classified as security sensitive information (SSI). The COA for current UAS operations and associated internal guidance and directives were not made available to the team due to SSI security concerns by facility staff. After the briefing, the ATC group reviewed the training records of Mr. Richard Adams, the sector controller that worked the airspace that contained the unmanned aircraft, and Mr. Robert

[3] All altitudes are expressed in mean sea level (MSL) unless otherwise noted.
[4] Also known as ZAB.
[5] Certificate of Waiver or Authorization – COA - Certain FAR Sections allow the Administrator to issue a Certificate of Waiver, a Certificate of Authorization, or operations specifications, which authorize a deviation. These actions permit a person or an organization to either deviate from a specific regulation or comply with special alternative provisions, conditions, or limitations. This regulatory flexibility is available to the Administrator when the specific regulatory section stipulates that it is available. A waiver is authorized via FAA From 7711-1.

Mattman, Operations Manager in Charge (OMIC) of the shift. The ATC Group interviewed the two controllers on duty at the time that were involved with the accident, Mr. Richard Adams and Mr. Robert Mattman. Following the interviews, the team toured the control room with emphasis on evaluating the radar display at sector 42 and the relative location of sector 42 to the OMIC desk and radar map presentation of the temporary flight restrictions airspace and sub-segments. Despite several attempts by staff personnel, the requested radar maps could not be displayed for observation. After the tour, the team out-briefed ZAB management on observations and findings. This completed our work at the facility.

1. History of Flight

OMAHA 10 departed FHU at 0155, April 25, 2006 for routine operations in temporary flight restricted (TFR) airspace identified by FDC NOTAM 6/4277. The TFR blocked airspace from 14,000 to 16,000 feet to allow for protected airspace for UA operations at 15,000 feet. At 0159, FHU transferred control of OMAHA 10 to ZAB, sector 90/47 (combined) at 15,000 feet via a handoff.[6] At 0827 Omaha 10 requested from ATC and was cleared to operate in the Southern US Border TFR. At 1039:45, ZAB Sector 42 controller lost the Mode 3/C transponder code for Omaha 10 and transmitted "Omaha one zero, radar contact lost[7], reset transponder". At 1040:49, ZAB sector 42 controller transmitted "Omaha one zero, Albuquerque Center" but did not get a response. The ZAB sector 42 controller observed a primary radar return he associated with Omaha 10 track northeast, turn to the southeast and then lost the primary radar return. At 1040 the UA operator notified the ZAB watch desk that data link had been lost with Omaha 10. Between 1040 and 1044 the ZAB Operations Manager in Charge (OMIC) coordinated with the Western Air Defense Sector (WADS)[8] to solicit their assistance with locating Omaha 10. WADS reported the last radar return on Omaha 10 was at 10,400 feet located at 3149.09N/11057.02W. At 1052 Tucson Approach control blocked airspace 15,000 and below to protect for the possibility that the UA would traverse Tucson's airspace. At 1100 the OMIC notified the DEN[9] that the primary target and transponder had been lost with Omaha 10. At 1112, WADS advised the OMIC that they had tracked Omaha 10 to a point ten miles northwest of Nogales, Arizona. At 1128 FAA Central (ASW) and Western (AWP) Regional Operations Centers (ROC) were notified of the Omaha 10 situation. At 1147, Tucson approach advised that, based on recorded radar replay, the last recorded position they had on Omaha 10 was about 25

[6] HANDOFF− An action taken to transfer the radar identification of an aircraft from one controller to another if the aircraft will enter the receiving controller's airspace and radio communications with the aircraft will be transferred.

[7] RADAR CONTACT LOST - Used by ATC to inform a pilot that radar data used to determine the aircraft's position is no longer being received, or is no longer reliable and radar service is no longer being provided

[8] WADS - Western Air Defense Sector. Bi-national organization exercises operational control of Air National Guard fighter aircraft on continuous alert at several locations and uses radar data and the radio capabilities of Joint Surveillance System sites located throughout the western United States. These sites, jointly funded and used by the Department of Defense and FAA, are operated and maintained by FAA personnel. The Sector also uses radar data from tethered aerostats and gap filler radars to improve its low level coverage of the nation's southwestern border. Radar data from all these sources is electronically fed into computers at the Sector Operations Control Center where personnel correlate and identify all airborne targets and, if necessary, scramble alert fighters to identify those whose origin is unknown. As part of NORAD, the Sector is the lead Department of Defense agency for interdiction of drug smuggling aircraft.

[9] DEN - The FAA's Domestic Events Network (DEN), a continuously operated unclassified network for sharing critical incident information regarding aircraft deviations and violations of security restricted airspace.

miles northwest of Nogales, Arizona. At 1325, according to the Albuquerque ARTCC Daily Record of Facility Operation (FAA Form 7230-4) ZAB was notified by TG at CBP advised ZAB that Omaha 10 had been located at 3134.002N/11056.473W ((Nogales) OLS 322 radial/10 DME), and that the aircraft had been destroyed with no collateral damage evident. The OMIC advised the DEN, FAA ASW and AWP ROC that the aircraft had been located.

2. Radar

Radar flight path information was reconstructed from data recorded from four radar systems. The four systems were:

PHX - Phoenix, Arizona - Air Route Surveillance Radar (ARSR) located at 33.58.52.700N/-111.47.52.800W

SVC – Silver City, New Mexico – ARSR located at 32.59.20.000N/-108.57.40.000W

AJO – Ajo, Arizona – ARSR located at 32.25.52.200N/-112.56.42.400W

FTH – Fort Huachuca, Arizona – Airport Surveillance Radar (ASR) located at 31.29.08.933N/-110.17.44.481W.

Of these radar systems, FTH provided the most robust radar return for both primary and secondary radar. These four radar systems are tied into the WADS radar system.

3. Air Traffic Control

At 0327, all positions in the ZAB southwest area were combined at sector 42. At 1039 the ZAB Sector 42 controller lost radar contact and radio communications with OMAHA 10 after which he restricted airspace from 15,000 feet to the surface in accordance with FAA Order 7110.65, Air Traffic Control, paragraph 10-4-1, Traffic Restrictions, and advised Tucson Approach to do the same because Tucson airspace was adjacent to ZAB. The controller advised his supervisor of lost radar contact with OMAHA 10. The ZAB OMIC advised the Sector 42 controller that the UA had lost link, as reported by the UA pilot. Both the Sector 42 controller and the OMIC expected the UA to fly the course they had observed on several previous lost link events, which took the UA through a corridor just north of Nogales, Arizona at 15,000 feet to final recovery at FHU. Following lost radar and lost communications, ATC queried the UA pilot via telephone, the location of the UA. According to the controller, the UA pilot did not know the location of the aircraft. ATC queried a C-130 aircraft in the area in an attempt to determine if an emergency located transmitter (ELT)[10] was transmitting. The C-130 reported no ELT transmitter was heard.

FAA Order 7110.65, "Air Traffic Control", Chapter 10, "Emergencies" states:

> Consider that an aircraft emergency exists when there is unexpected loss of radar contact and radio communications with any IFR or VFR aircraft. Start assistance as soon as enough information has been obtained upon which to act. Information

[10] ELT - A radio transmitter attached to the aircraft structure which operates from its own power source on 121.5 MHz and 243.0 MHz. It aids in locating downed aircraft by radiating a downward sweeping audio tone, 2-4 times per second. It is designed to function without human action after an accident.

requirements will vary, depending on the existing situation. Minimum required information for in-flight emergencies is:

1. Aircraft identification and type.
2. Nature of the emergency.
3. Pilot's desires. After initiating action, obtain the following items or any other pertinent information from the pilot or aircraft operator, as necessary:
1. Aircraft altitude.
2. Fuel remaining in time.
3. Pilot reported weather.
4. Pilot capability for IFR flight.
5. Time and place of last known position.
6. Heading since last known position. 7. Airspeed.
8. Navigation equipment capability.
9. NAVAID signals received.
10. Visible landmarks.
11. Aircraft color.
12. Number of people on board.
13. Point of departure and destination.
14. Emergency equipment on board."

While ATC considered lost radar and radio communications with OMAHA 10 an emergency, an emergency was not declared by the pilot or by ATC.

FAA Order 7210.56, "Air Traffic Quality Assurance", Section 4-1-3; "Quality Assurance Review" states:

> "Quality Assurance Review (QAR), air traffic management will conduct a QAR when air traffic control services are involved in aircraft accidents."

FAA Order 7210.3, "Facility Operation and Administration", Section 4-6-5, "Preparation of FAA Form 7230-4, Daily Record of Facility Operation" states:

> "A reference to the incident shall be logged on FAA Form 7230-4, Daily Record of Facility Operation as a Quality Assurance Review (QAR)" This shall be annotated by the letter Q in the left hand column of the log beside QAR entries.

There was no QAR conducted nor facility log entry made on the OMAHA 10 accident.

FAA Order 8020.16, "Aircraft Accident and Incident Notification, Investigation, and Reporting", section 65, "Air Traffic Aircraft Accident and Incident Notification and Reporting" states:

> ATC facilities shall report all known and suspected accidents. The FAA Washington Operations Center shall be notified of accidents within 2 hours of the original accident report. An example of a suspected accident is the simultaneous unexplained loss of radio communications and radar contact with an aircraft.

> The ATC facility first receiving notification of a known accident or a suspected accident shall make and record initial notification using FAA Form 8020-3, Facility Accident/Incident Notification Record."

According to Terry Locke, Air Traffic Manager for Albuquerque ARTCC, ZAB did not complete FAA Form 8020-3 in conjunction with the crash of this UA because Albuquerque ARTCC did not believe this event qualified as an aircraft accident until being notified that a formal accident package was to be filed by higher authority. According to facility staff, the OMAHA 10 crash did not qualify as an aircraft accident because the aircraft was unmanned.

FAA Order 7110.65, paragraph 10-3-1, Overdue Aircraft, states:

> Consider an aircraft to be overdue, initiate the procedures stated in this section and issue an ALNOT[11] when neither communications nor radar contact can be established and 30 minutes have passed since its estimated time of arrival over a specified or compulsory reporting point or at a clearance limit in your area, its clearance void time, or if you have reason to believe that an aircraft is overdue prior to 30 minutes, take the appropriate action immediately. The procedures in this section also apply to an aircraft referred to as "missing" or "unreported."

ZAB did not issue an ALNOT in conjunction with the lost radar contact of this UA.

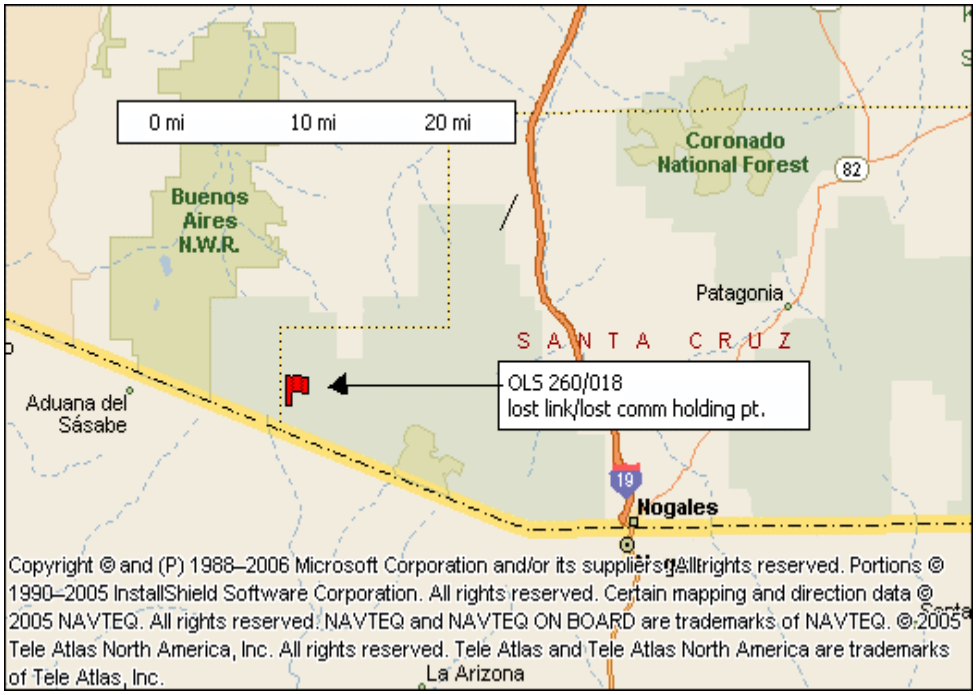
FAA Order 8020.16, "Aircraft Accident and Incident Notification, Investigation, and Reporting", an aircraft is defined as a device that is used or intended to be used for flight in the air. An aircraft accident is defined as an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and until such time as all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.

4. COA Procedures

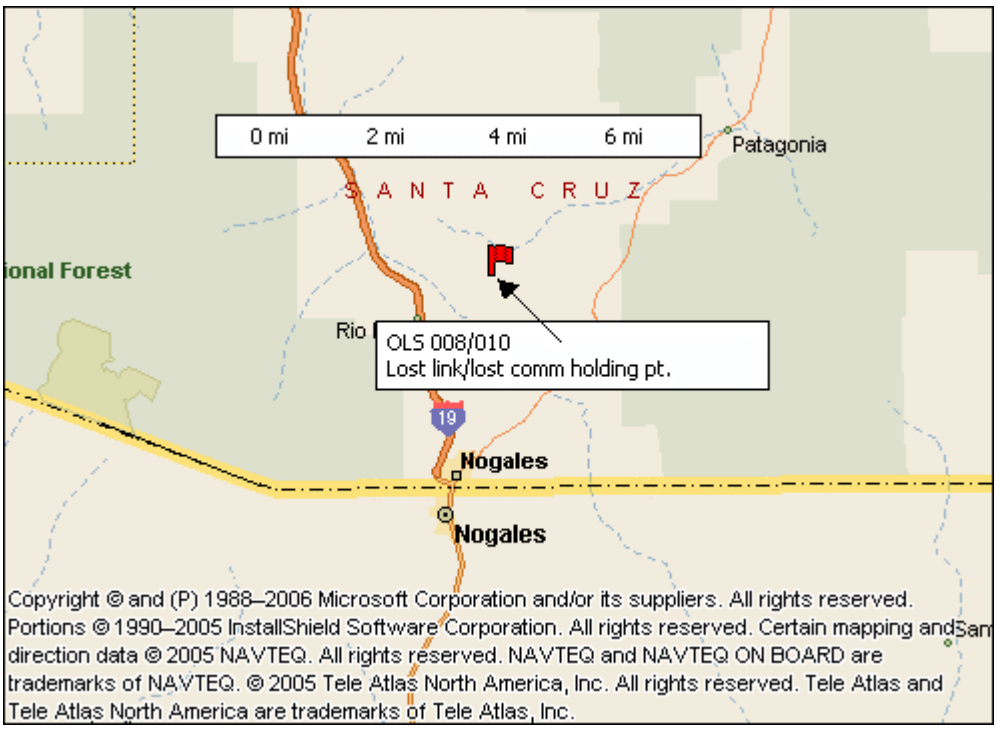
OMAHA 10 was being operated under a Certificate of Waiver or Authorization (COA) valid from April 1, 2006 through February 28, 2007 and was issued to the DHS/CBP by the FAA on March 31, 2006.

The COA authorized daily operations of the Predator B UA aircraft from 0000 to 1500 UTC, operating at 15,000 feet mean sea level (MSL) within the 14,000 to 16,000 feet MSL (inclusive) in the Southern US Border Temporary Flight Restriction (TFR).
Provisions of the COA include requirements for CBP to insure a specific flight profile in the event of flight termination, lost link, and/or lost communications. These provisions mandated specific flight profiles and UA holding points depending on where the failure occurred. The UA had been cleared by ATC to operate in the TFR when radar and radio contact were lost.

[11] Alert Notice - A request originated by a flight service station (FSS) or an air route traffic control center (ARTCC) for an extensive communication search for overdue, unreported, or missing aircraft.



One of the lost link and lost communication UA orbit point the UA was to proceed to in TFR was the Nogales 260 radial, 18 mile fix.



Another of several lost link and lost communication UA orbit points the UA was to proceed to in the TFR was the Nogales 008 radial, 10 mile fix.

a. COA Lost Link Procedures

In the event of lost link, the UA pilot shall immediately inform ATC of the following:

1. The UA callsign
2. UA IFF squawk
3. Lost link profile
4. Last known position (as per FAA procedures, position information will be given relative to NAVAIDS)
5. Pre-programmed airspeed
6. Useable fuel remaining (expressed in hours and minutes)
7. Heading/routing from last known position to the lost link mission loiter (holding)

In the event of lost link, the UA shall automatically:

1. Turn northward and proceed within the TFR to the appropriate lost link location.
2. Hold for 30 minutes.

CBP shall ensure that the UA remains at the last assigned altitude and within the TFR at all times, including while holding.

3. Proceed within the TFR to the adjacent lost link location in the direction of Libby AAF (and hold as indicated in step 2), and

Procedure steps 2 and 3 shall be repeated until the UAS has entered R2303[12]

4. Depending on the status of R2303, the UA shall:
   a. Hold at the lost link location in area 2[13] until R2303 becomes active, or
   b. Enter R2303, and

Then cancel IFR services with ATC and proceed to Libby AAF in accordance with the appropriate Certificate of Authorization.

b. COA Lost Communications Procedures

In the event of lost radio communications between the UA pilot and ATC, the pilot shall:

1. Squawk MODE C code 7600 ("NORDO")
2. Attempt to re-establish communications with ATC via alternate means (telephone communications, etc.) Communications with ATC will take priority
3. If primary radio communication cannot be re-established, the UA will proceed within the TFR to the lost communications location
4. Hold for 30 minutes

CBP shall ensure that the UA remains at the last assigned altitude and within the TFR at all times, including while holding

5. Proceed within the TFR to the adjacent lost link location in the direction of Libby AAF (and hold as indicated in step 4) and

Procedure steps 4 and 5 shall be repeated until the UA has entered R2303

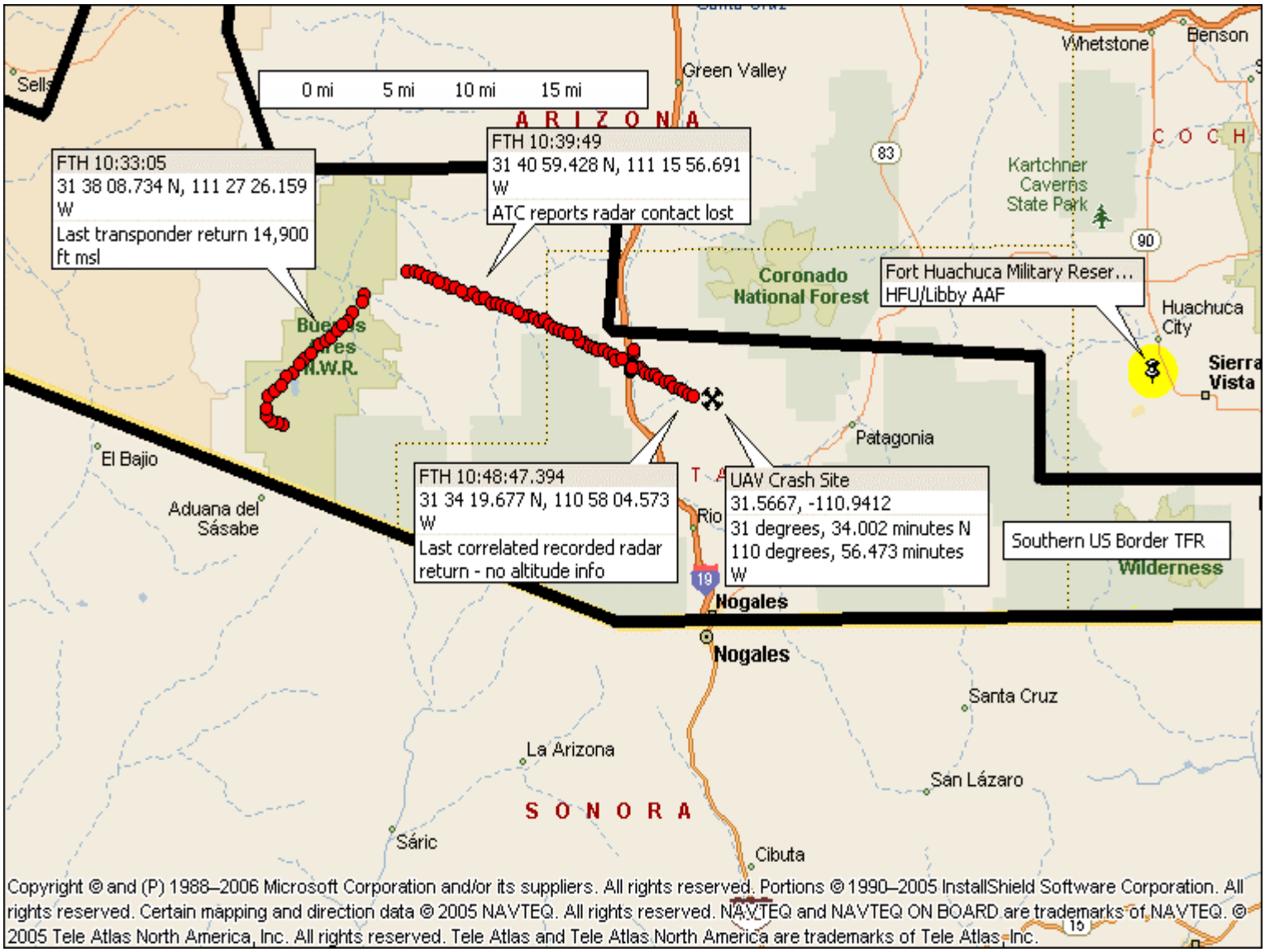
6. Depending on the status of R2303, the UA shall:
   a. Hold at the lost link location in area 2 until R2303 becomes active, or
   b. Enter R2303, and

Then cancel IFR services with ATC and proceed to Libby AAF in accordance with the appropriate Certificate of Authorization.

Lost radar procedures were not addressed in the COA.

[12] R2303 is restricted airspace that overlies Libby AAF. Controlled by Albuquerque Center, it is active from 0700 to 1700 local daily.

[13] Area 2 is not defined in the COA



OMAHA 10 UA Radar Flight Track
Radar data derived from FTH ASR

Radio, link, and radar contact were lost in the TFR. There was no record of communication or coordination between the UA pilot and ATC regarding a specific or preferred lost link flight profile as required by the COA.

After communications, link and radar contact were lost, neither ATC nor the pilot knew the location of the UA. However, the ZAB radar controller expected the UA to fly a lost link profile observed during previous lost link events. The anticipated flight path, based on pervious lost link events, was for the UA to fly via a non-defined corridor just north of Nogales at 15,000 feet msl, and recover at FHU. The actual UA flight path that resulted in a crash did not correlate to previous lost link profiles nor conform to published COA recovery procedures.

Eleven months after this accident, the ZAB controllers were not aware of the actual flight path of OMAHA 10 prior to the crash.

According to the FAA, the COA was suspended as a result of this accident. The COA expired February 28, 2007.

5. Personnel Interviews

Richard Adams ZAB Sector 42 Controller

The ATC Group interviewed Mr. Adams on April 9, 2007. In response to questions, he provided the following information:
Mr. Adams started with the FAA on April 19, 1988. This has been his only assignment with the FAA. He had no other air traffic control history. He had been at ZAB just under 19 years. He was qualified at sector 42, and as a CPC for 17 years. He was qualified in the Southwest area, which includes sectors 42, 46, 49, 47, 90, 80, 91, and 65. His collateral duties included Controller in charge (CIC) and On-the Job Training Instructor (OJTI). His medical certificate was current with no waivers or restrictions. Mr. Adam's workweek schedule at the time of the accident was an evening shift on Friday and Saturday, a day shift on Sunday, and a midnight shift on Sunday and Monday. His regular days off (RDO) were Wednesday and Thursday. His current workweek schedule was an evening shift on Friday and Saturday, a day shift on Sunday and Monday and a midnight shift Monday evening. His RDO remains Wednesday and Thursday. On the day of the accident, he was working the 2245 - 0645 local time[14] midnight shift. This was the last day of his workweek. When asked if he worked overtime, Mr. Adams responded that he has not worked overtime in the last six months. Prior to last six months he would work overtime once every six to eight weeks. His current immediate supervisor is Ed Rivera. He did not recall who his immediate supervisor was on the day of the accident. When asked if he recalled any personal issues that may have affected his performance on the day of the accident that he cared to discuss; he stated no. When asked if he recalled any equipment issues of the evening of April 25, 2006 he stated that communications difficulties with the Omaha were common, he stated that he had reported these problems to his supervisor on more than one occasion, and the evening of April 25 was no different. Mr. Adams stated that today was the first time he had taken the opportunity to review any information regarding this accident and that

[14] All times in the "Personnel Interviews" section are in local time.

the only thing he reviewed was his personal written statement.

When asked to describe the events of the accident to the best of his recollection, Mr. Adams stated that he was working the mid-watch on 42 sector in the Southwest region of ZAB. Sector 42 was combined with sectors 46, 49, 47, 90, 80, 91, and 65 and that this was a normal midnight configuration for the Southwest area. Mr. Adams stated that when he returned from a break he was briefed that Omaha 10 had been cleared to the operate in the TFR. After a while he noticed that the Mode 3/C/C on Omaha 10 was missing but that he still had a primary return. He then broadcast to Omaha 10 "radar contact lost, reset transponder". He received no response. He noticed the primary target tracking northeast then turned to the southeast and then lost radar contact altogether. He then found the phone number for the UA pilot at Libby airfield. He called the UA pilot and the pilot advised that he had lost the UA and asked if air traffic control still had him. Mr. Adams advised the UA pilot that ATC had lost radar contact. Mr. Adams called Tucson approach control, and asked if they still saw Omaha 10 on radar. Mr. Adams does not recall Tucson's response, but he did remember that he advised Tucson to block the airspace but he was not specific to what airspace was to be blocked. Mr. Adams then called the front desk and spoke with the operations manager (Mr. Mattman) and told him what was going on. Mr. Adams had a military aircraft in the area and had him check for emergency locator transmitter (ELT) with negative results. Mr. Adams made a couple more calls to and from Tucson approach control in an ongoing attempt to find the aircraft. The operations manager, Mr. Mattman, handled the rest of the coordination from the front desk. Mr. Adams stated that his relief arrived at 0545 and that he went home at 0645 on April 26, 2006.

When asked if he restricted airspace after he lost radar contact with Omaha 10, Mr. Adams stated that he restricted airspace from 15,000 feet to the ground and that he advised Tucson approach control to do the same since Tucson's airspace was adjacent to the area that Omaha 10 was lost. The airspace restriction was in effect until he was relieved and that he did not know when the airspace restriction was actually lifted. When asked what control actions are required with regard to radar contact lost, Mr. Adams stated that he is to notify the aircraft that radar contact is lost and attempt to reestablish radar and identify the aircraft. When asked what kind of restrictions are placed on aircraft that radar contact was lost on, he stated that he believed normal restrictions were to be lifted 30 minutes after known fuel exhaustion.

When Mr. Adams was asked when the unmanned aircraft was located, he responded that he did not know and that he was never briefed. He only heard about the aircraft crash from the local news. He stated that until a few months ago he did not know what had happened to Omaha 10. He stated that there was never a post accident debrief, other than controller statements, and that he was never briefed nor asked about anything to do with unmanned aerial systems.

When Mr. Adams was asked how familiar he was with the provisions of the Omaha 10 certificate of authorization. He stated that he was familiar enough to know that if the UA went lost link that the UA would return to Libby. When asked to discuss lost link procedures, he stated that if the UA went lost link it would return to Libby at 15,000 feet. When Mr. Adams was asked what happened vice what was supposed to happen in this situation, he responded that as far as he was concerned the UA did exactly what it was supposed to do. Mr. Adams stated that he was not familiar with the specific TFR lost link procedures other then that possibly the

UA was going to orbit somewhere for a while and then return to Libby at 15,000 feet. When presented a printout showing the actual flight path of Omaha 10, Mr. Adams stated that this was the first time he was made aware of the actual flight path of Omaha 10 prior to the accident.

When asked if he considered the Omaha 10 accident an emergency he responded yes. When asked if an emergency was declared, he stated that it was not a declared emergency. He stated that he had never declared an emergency on an aircraft as an air traffic controller. He explained that he handled it as an emergency, advised the supervisor, and since he considered the event to be in his airspace, a declaration of emergency was not relevant. When asked if anyone, including the UA pilot declared an emergency on this accident, he stated, no. When asked who can declare emergency he responded, a controller, a pilot or the aircraft company.

Mr. Adams stated that he was only vaguely aware of the capability of the Predator B.

When asked if he considered UAS operations in the NAS as a new element air traffic management, he responded yes, that it created an added complexity to air traffic control. When asked what his personal opinion was regarding the cause of this accident, he responded that it was only recently that he was aware of the specifics of the accident and that he gathered that information from the media. Based on his observations of the media reports, he considered this accident to be pilot error. When asked to define WADS and how they figured into this accident, he responded that WADS is the western area defense sector and that he worked with them regularly on issues of aviation border incursion. He believes they are located in Washington State and suspects that they have a radar feed from the aerostat balloon at Libby. He stated that he was not familiar with the acronym "AMOC".

When asked to describe the training he received prior to or after the Omaha 10 accident, he stated that he had received Omaha 10 UA briefing in April 2006 and had received a crew briefing for the new ongoing UAS operations in the last month.

Robert Mattman ZAB Operations Manager in Charge (OMIC)

The ATC Group interviewed Mr. Mattman on April 9, 2007. In response to questions, he provided the following information:

Mr. Mattman started with the FAA on February 15, 1988. This has been his only assignment with the FAA. He was a controller with the United States Marine Corps for nine years and was stationed at MCAS El Toro and MCAS Miramar. While in the Marine Corps, Mr. Mattman was detailed to the FAA at Santa Monica during the controller strike in 1981. Of the 19 years he has been at ZAB, he has been a front line manager for four years. He is qualified as an operations manager, has qualified in the ZAB Eastern area, and is qualified and current at sector 95, both R and D side. His collateral duty is the manpower and staffing coordinator for ZAB. His medical certificate is current with the restriction that he must wear reading glasses while on position. His current workweek schedule is 0700 - 1500 Saturday, 1500 - 2300 Sunday and Monday, and 2200 – 0600 Tuesday evening/Wednesday morning. His RDOs are Thursday and Friday. He does not recall his workweek schedule on the day of the accident. His immediate supervisor is Delray Archut and has been since last July. Delray is the Operations Manager for the Eastern Area. On

the day of the accident Mr. Mattman was working the 2345 to 0645 shift. He was the operations manager for the facility. This was part of his normal rotation. When asked if he worked overtime he stated that he did not however the facility is now calling for five overtime shifts per week and it is expected to increase due to facility staffing shortages. Mr. Mattman stated that there were no personal issues affecting his performance on the day of the accident. When asked if he recalled any equipment issues on the day of the accident, he recalled that the defense information network service (DINS) phone had been relocated to a new position and that while it did not prove to be a problem, not being in its normal location sort of threw him off. Asked if he had an opportunity to review this accident to include data, statements, etc., he responded that he had not.

When asked to describe the events of the accident, Mr. Mattman stated that he was the operations manager in charge of ZAB on the evening of April 25, 2006. At about 0345, Richard Adams (sector 42) called and advised that they had lost Mode 3/C on Omaha 10. Shortly thereafter (about one minute) the pilot of the UA called and advised the datalink was lost and that according to procedure Omaha would automatically return. Omaha 10 had done that on several previous occasions. He told Richard Adams to keep watching for the Mode 3/C and to block airspace. There is a predefined course and altitude to protect. Mr. Mattman believed that Mr. Adams also called Tucson approach control and directed them to protect airspace. Mr. Mattman called the UA operator after about 15 minutes, but the operator was not the pilot. When he finally did get a hold of the pilot, he asked him about an ELT. The pilot responded that there was an ELT on the UA but that it was in the nose of the aircraft and probably would not survive a crash. Mr. Mattman also asked the UA pilot if he knew the location of Omaha 10. The pilot stated he did not, but that he was attempting to reestablish the link. Mr. Mattman had Mr. Adams ask the pilot of a C-130 that was operating in the area to listen for an ELT; but there were negative results. Mr. Mattman stated that at this point he was starting to feel uncomfortable with the situation, because he was out of options. He called WADS, southwest and western ROC, and the DEN. Western air Defense sector advised they had a primary radar return on the Omaha at 10,400 feet tracking southwest before they lost radar contact with the UA. Mr. Mattman stated that he delayed calling on the lost UA, because the UA was supposed to loiter and if not reacquired, was to return to Libby. This particular lost link scenario had occurred five times before and the UA had always returned to Libby via the southern corridor. The total anticipated time for this event to occur, based on experience, was about 45 minutes. He stated that by the time he got on the DEN line, that there should have been ample time for the aircraft to return to Libby. Mr. Mattman stated that, after the fact, he really did not know how to handle this type of situation. He stated that past experience with the UA was that sometimes Mode 3/C was intermittent or not working and primary radar was a hit or miss. He said, “We often had to depend on the UA pilot to tell us the UA had landed.” Previously lost link flight paths were through a corridor just north of Nogales, Arizona at 15,000 feet and then on to recover and land at Libby. Omaha 10 did not appear to fly the traditional lost link profile. The UA had been out of service for about a month prior to this accident. Omaha 10 was recently returned to service, and there may have been a new lost link procedure programmed. About 0445 his relief arrived and Mr. Mattman put him on the phones while he continued to monitor the situation. Mr. Mattman stated that he went home early that day, about 0600, and when he left Omaha 10 had not been located and did not know if it had crashed.

Mr. Mattman stated that he understood that the CBP program originally had three UA's . One of the UA's was out of commission for mechanical failure. Another UA had crashed on a previous mission and this was the last UA in the CBPs inventory. After Omaha 10 was lost the entire program shut down. Mr. Mattman assumed the program was shut down only because CBP had run out of aircraft.

When asked what training he received for the UA operations, Mr. Mattman stated that we were initially briefed on the new COA in January and April of 2006. It was a mandatory training item. He stated they received additional training via crew briefings on the new UAS mission that had recently started up again. The most recent crew briefing that occurred in the last month was much more thorough than the briefings of January and April 2006. Mr. Mattman stated that he still sees the same traps with this UAS mission as previously. He stated that the only added benefit of the new brief was that in an emergency, the UA would proceed to the nearest airport and land. Mr. Mattman stated that the briefings implied the UAS mission was an experiment and not an airplane per se.

When asked if he considered this an accident, he responded that in hindsight, he considered it an accident but did not really know how to handle it when it occurred. He stated that it took days for the facility to determine a course of action. He believed that FAA HQ finally directed that this be classified an accident and for ZAB to submit an accident package. When asked who files an accident report at ZAB, he responded that the OMIC would call in an accident according the steps outlined in the accident folder at the OM desk. Since the accident information was not resolved by the time he got off work, he was not aware whether or not an accident report was submitted for this. When asked what is the time frame for reporting an accident, he responded that accidents are to be reported by telephone to the operations center immediately and all other action is to be done in accordance with the accident notebook at he front desk. He stated that had not memorized the procedures but would use the accident notification binder when required.

When asked if a QAR was submitted for this accident and what was the follow-up action, he responded that a QAR was submitted and that he was not aware of any follow-up action on the QAR.

When asked to describe control actions for radar contact lost, Mr. Mattman responded that "you are to continue to monitor the aircraft, attempt to re-establish radar contact, issue an ALNOT and/or INREQ and to protect the airspace."

When asked how familiar he was with the COA and the specific provisions of lost link, lost communications, etc., Mr. Mattman stated the he expected the UA to autonomously return to Libby via previously observed tracks but he also stated that not being from the Southwest area, that he was not really familiar with the specifics of the COA.

When asked if the UA performed and flew as expected, he responded that "we had come to a certain level of expectation with the UAS in that communications with Omaha were intermittent, Mode 3/C was intermittent and occasional control actions were relayed via telephone" so as far as he knew the Omaha was performing as expected. Mr. Mattman stated that until today (April 9, 2007) he was not aware of the final track or accident location of Omaha 10. Mr. Mattman

stated that he was not queried regarding the accident other than his written statement and was surprised at the absence of any feedback from facility management on this accident.

When asked if an emergency was declared on this accident, Mr. Mattman responded that an emergency was not declared but he did notify everyone that he would normally notify in the event of an emergency. This notification included the ROC's, WADS and the DEN. He did not fill out the FAA From 8020-3, Accident/Incident Notification Form.

When asked what his personal opinion was regarding the cause of this accident, he responded that he thought it was pilot error.

When asked to explain "WADS" and how did they relate to this accident, he responded that WADS is the Western Air Defense Sector located in Washington State and that they have better radar than the ARTCC. He stated that ZAB communicates with WADS on a regular basis.

When asked if he knew what AMOC was, he responded that he did not.

When asked if the considered UAS a new element and challenge to ATM in the NAS his response was, "oh yea".

Dan Bartlett
ATC Group Chairman