BY ORDER OF THE COMMANDER MINOT AFB

MINOT AIR FORCE BASE INSTRUCTION 91-212

10 OCTOBER 2013

Safety

BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH) PROGRAM

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This instruction provides a base program to minimize aircraft exposure to potentially hazardous wildlife strikes. It augments AFI 91-202, *US Air Force Mishap Prevention Program*. This instruction applies to all host, tenant, associate, and TDY organizations on Minot AFB, including US Air Force Reserve members and units. 5 BW/SEF is the OPR for this instruction and will complete an annual review by 1 September. The 5 BW/CC is responsible for implementation of this instruction. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF IMT 847, *Recommendation for Change of Publication*, and route the AF IMT 847 from the field through the Base Publishing Manager. Maintain records created as a result of published processes prescribed IAW AFMAN 33-363, *Management of Records*, and dispose of records IAW the AF Records Disposition Schedule (RDS), available from the Air Force Portal at the AF Records Information Management System (AFRIMS) link. Contact supporting records managers as required. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Major changes include the addition of the Minot Air Force Base USDA Wildlife Biologist.

1. BASH Program Information.

1.1. General. This plan establishes a hazard abatement program to minimize bird and terrestrial animal strikes. Daily and heavy seasonal bird movements in the vicinity of Minot AFB create the most serious hazards to local and transient aircraft, if unchecked by local agencies. Due to the dynamic situation presented by birds and mammals, no single solution to the bird/wildlife strike problem exists. This document outlines mitigation techniques, directs BASH activities, and tasks organizations within the wing to support the program. This plan is designed to:

1.1.1. Establish a Bird/Wildlife Hazard Working Group (BHWG) and designate responsibilities to its members.

1.1.2. Establish procedures to identify potentially hazardous situations and to aid aircrews and supervisors in altering/discontinuing flying operations when warranted.

1.1.3. Establish aircraft and airfield operating procedures to mitigate hazardous situations.

1.1.4. Provide a system to disseminate BASH information to all assigned and transient aircrews on specific bird hazards and procedures for avoidance.

1.1.5. Establish guidelines to decrease the attractiveness of the airfield to birds and mammals IAW AFI 32-1053.

1.1.6. Provide guidelines for dispersing birds/wildlife when their presence on the airfield constitutes a viable threat to aircraft.

1.2. Situation. Minot AFB is located in northwestern North Dakota in the Central and Mississippi flyways, 15 miles southeast of the Lake Darling Wildlife Refuge. The base is in Ward County, 8 miles north of the city of Minot. The airfield altitude measures 1,668 feet above sea level. Mean annual precipitation in the area is 17.2 inches. The total installation size is 1,907 hectares (HA) (4,714 acres) of which 820 HA (2,026 acres) are improved, 839 HA (2,074 acres) are semi-improved, and 248 HA (614 acres) are unimproved. The base contains a wide variety of native prairie grasses and broadleaf plants. The base itself contains substantial standing water in spring and summer that acts as a major attractant for waterfowl, wading birds, and gulls. The surrounding off-base agricultural region provides a substantial food source for migrating waterfowl. Hazards exist on or around the airfield year round with an increase from March through November and peak activity during the spring and the fall migrations. The majority of bird strikes occur in the summer months involving small birds such as swallows that generally do not cause damage.

1.2.1. Phase I/II. The bird population is low in the winter, and is typically moderate in the vicinity of the airport throughout the year at Minot AFB, significant increases in hazardous migratory bird activity occur during the BASH Phase II period. Phase II is defined as April-June and September-November migratory seasons. All other times throughout the year are classified as BASH Phase I.

1.3. Specific hazards. Flying safety on the aerodrome will be significantly increased through habitat management, active bird hazard abatement methods, effective warning techniques, and depredation, as necessary.

1.3.1. Waterfowl. Large flocks of waterfowl present the greatest threat during the migration seasons. Waterfowl transiting to and from Lake Darling over-fly the base. Waterfowl roost on the sewage lagoons during the spring and fall seasons, posing a limited threat to operations. Historically, migrating birds rarely fly higher than 100 feet when transiting from lagoon to lagoon on or near the base and can be monitored by the Minot AFB Tower. Mitigation efforts include use of pyrotechnics, aggressive use of the Bird Watch Condition (BWC) program, depredation, and vigilance from both ground and air personnel with manipulation of flight paths when needed.

1.3.2. Birds of prey. Periodically, hawks and falcons soar over and near Minot AFB's runways in search of food. While searching, they often fly co-altitude with aircraft on the approach or departure flight paths. Mitigation efforts include maintaining the proper airfield grass height and eliminating potential prey (to discourage their hunting on the airfield), capture and relocation by qualified personnel, and the use of pyrotechnic dispersal techniques.

1.3.3. Gulls. Gulls present a hazard in late summer when they hunt for grasshoppers around the airfield. Dispersal techniques include, but are not limited to, vehicle patrols, the use of pyrotechnics, and depredation.

1.3.4. Mammals. The presence of whitetail deer in the local area represents an additional hazard to aircraft as the potential damage from an aircraft striking a deer is significant. Largely nocturnal feeders, the local deer population poses the greatest threat during periods of darkness with high illumination. Periodically, small groups of deer gain access to the airfield. In addition, a local white-tailed jack rabbit population also presents a limited threat. Found throughout the base, these animals seldom frequent the airfield. However, combined with a large Richardson's ground squirrel population, jackrabbits provide a food source for predatory birds. Mitigation efforts include diligent inspection of flight line fencing to quickly discover and repair holes and means of entry for the animals, mounted and dismounted patrols of the airfield, use of pyrotechnics, diligent action by base agencies to assure airfield access gates are closed, and depredation of terrestrial wildlife threats when necessary.

1.4. Passive BASH Risk Mitigation Measures.

1.4.1. BHWG

1.4.1.1. Function. Collects, compiles, and reviews data on bird strikes, identifies and recommends actions to reduce hazards. Recommends changes in operational procedures. Prepares informational programs for aircrews. Assists the commander by acting as a point of contact for off-base issues.

1.4.1.2. Authority. The BHWG submits all recommendations to the operational commander for approval. Implementation is through normal chain of command.

1.4.1.3. Composition. The chairman will be the 5 BW/CV. As a minimum, the group will consist of a representative from 5 BW/SEF, 91 MW/SEF, 5 OG/CC, 5 BW/JA, 5 MXG, Airfield Management Operations (5 OSS/OSAA), Air Traffic Control (5 OSS/OSAT), Civil Engineer (5 CES/CEO), Roads and Grounds (5 CES/CEOHP), Environmental Analysis (5 CES/CEAN), 23 BS/SEF, 69 BS/SEF, 54 HS/SEF, and 5 OG/SOF.

1.4.1.4. Meeting schedule. Semiannually, prior to the beginning of the spring and fall migrations or more often as necessary.

1.4.2. Habitat modification. By incorporating specific practices into the base land management plan, Minot AFB can maintain a flight line habitat less attractive to birds and other wildlife. Any base beautification or wetland enhancement plans will be coordinated through Wing Safety (5 BW/SE), Base Legal (5 BW/JA), Civil Engineering (5 CES/CEO), and Airfield Management (5 OSS/A3AA) IAW AFI 13-204 Volume 3, *Airfield Operations Procedures and Programs.*

1.4.2.1. Managing grass height. Refer to AFI 91-202. Civil Engineering will mow to maintain a uniform grass height between 7 and 14 inches "effective height." This refers to the grass depth after it is cut, not the actual height of the mower blade. Grass of this length deters birds by either preventing them from efficiently locating food sources close to the ground and/or preventing them from seeing the approach of predators. Fast growing species of weeds should be eliminated or reduced by the controlled use of herbicides or other methods. Do not allow grass to exceed 14 inches, as tall grass will attract additional bird species and rodents which, in turn, attract birds of prey, deer, and waterfowl. Begin mowing adjacent to runways and finish in the infield or outer-most grass areas. This will cause insects and other animals to move away from aircraft takeoff and landing areas. Cut grass before it goes to seed to discourage granivorous birds from feeding on the airfield. The following agencies will aid the 5 CES in maintaining a uniform grass effect:

1.4.2.1.1. The fire department will mow the sod grass 10 feet beyond the asphalt road behind the fire department. The front lawn of the fire department may be mowed short for base beautification. All other grass around the building and on the edges of the fast-response route will be maintained between 7-14 inches.

1.4.2.1.2. The 5 AMXS and 54 HS building custodians will ensure compliance with mowing requirements outlined in this publication.

1.4.2.2. Maintaining drainage ditches. Civil Engineering should regularly inspect ditches to keep them clear. Maintain ditch sides as steep as possible (minimum slope ratio of 5 to 1) and mow vegetation to discourage wading birds and emergent vegetation. Remove cattails and other water loving plants that are not easily cut to height (7 to 14 inches) due to saturated soil and the limits of mowing equipment. Improve drainage as necessary to inhibit temporary ponds or puddles and coordinate with 5 CES/CEAN to ensure no impact on wetlands.

1.4.2.3. Controlling broadleaf plants. Keep broadleaf plants to a minimum on the airfield. Apply herbicides as necessary to achieve this and comply with AFI 32-1053, *Pest Management Program*. Broadleaf plants attract a variety of birds, may produce seeds or berries, and may limit grass growth. Obtain assistance in herbicide selection for broadleaf plant control, appropriate grass seed selection, fertilization, and erosion control vegetation from BASH team recommendations, U.S. Soil Conservation Service, or the Agricultural Extension Service.

1.4.2.4. Planting bare areas. Eliminate bare areas on the airfield. Plant grass as required. Re-seed with the appropriate native grass to maintain ground cover and uniformity on the airfield.

1.4.2.5. Fertilizing. Selectively stimulate grass growth to promote a uniform cover. Irrigation may be required to support turf growth.

1.4.2.6. Removing dead vegetation. Remove dead vegetation such as brush piles, grass clippings, etc. This will effectively remove the cover it affords.

1.4.2.7. Removing edge effect. Maintain the airfield as uniformly as possible to reduce the transition zone between two distinct habitat types (e.g., brush to grassland).

1.4.2.8. Employing erosion control vegetation. Use vegetation that is appropriate for the region that does not go to seed at heights below 14 to 18 inches.

1.4.2.8.1. Pest controls. Invertebrates and rodents are key food sources for many birds. Periodically survey and reduce these pests when required. Pesticides and traps can reduce pest populations. Ensure compliance with AFI 32-7086, *Hazardous Materials Management*, section 2.5. Only EPA approved pesticides are authorized, and must be used strictly according to label instructions (AFMAN 32-1075). Use of these pesticides must be coordinated through and approved by the 5 CES Pest Management Shop. Use of these pesticides must be in strict accordance with their instructions IAW AFI 32-1053 and in conjunction with the approved EPA permits. Inspection and control should begin early in the spring after coordination is made with the animal control section of the Wildlife Management Plan.

1.4.2.9. Eliminate roosting sites. Control blackbird and starling roosts by vegetation management of roost sites where possible. Prune trees to reduce the number of perches and remove entire tree stands if necessary. Refer to INRMP, AFI 32-7064.

1.4.2.10. Hangars and Buildings. Facility Managers will bird-proof buildings and hangars as required to prohibit pigeons, sparrows, and swallows from nesting. Deny access by screening windows, closing doors, and blocking entry holes. Swallows will be controlled by aggressively removing all of their nests from buildings surrounding the flight line each spring. These nests will be removed regularly by the facility managers (daily if necessary) until the swallows choose a different roosting location. It is critical to remove the nests prior to their completion so the swallows choose to settle elsewhere to raise their young. Refer to UFC 3-260-01, *Airfield and Heliport Planning and Design*. Civil Engineering will advise facility managers when requested.

1.4.2.11. Remove bird and animal carcasses from the airfield. In an effort to avoid attracting scavengers, remove carcasses as soon as they are discovered. Forward remains that may have been caused by collision with aircraft to Flight Safety (5 BW/SEF) for identification.

1.4.2.12. Leveling of airfield. Level or fill high or low spots to reduce attractiveness to wildlife and prevent standing water.

1.4.3. Maintaining flight line fencing. Inspect the flight line perimeter fencing monthly for evidence of digging under the fences, holes in the fencing, or other means of wildlife penetration. Repair all discovered weaknesses immediately.

1.4.3.1. Close perimeter gates. All personnel will ensure that all perimeter gates not located on major roadways will be closed at all times. Personnel passing through the gates are required to close the gates behind themselves before proceeding forward. If extended periods of opening are needed for a gate, a guard will be posted at the open gate until it is again closed and latched. Civil Engineering will ensure that all gates and latches are functional.

1.5. Active BASH Risk Mitigation Measures. The following wildlife dispersal methods will be used concurrently with passive control measures to reduce the threat of wildlife strikes at Minot AFB. Although no single method will alleviate all threats, the collective use of the following techniques offers effective risk mitigation over time. AFPAM 91-212 notes that the "key to active wildlife dispersal is perseverance." Agencies tasked within this instruction will actively pursue the following methods to ensure the highest success of the BASH program. **Note:** The Minot AFB Wildlife Biologist will be contacted prior to any shooting or trapping of terrestrial wildlife to ensure that the BASH effort is in compliance with the applicable state and federal regulations and permits for that animal.

1.5.1. Mobile Observation and Harassment. Vehicles provide a means of both monitoring bird activity and denying airfield access to wildlife threats. The use of vehicle horns, flashing lights, bio-acoustics, and sirens offer temporary dispersal and requires continuous movement on the airfield. Use vehicles in conjunction with other active control methods to make the airfield unsuitable to avian threats and wildlife.

1.5.2. Pyrotechnics. Pyrotechnics are noise producing devices fired from either a shotgun or a NJ-8 Very Pistol. The shotgun provides a greater range than the pistol. Both will be used in accordance with the following guidance:

1.5.2.1. Shotgun.

1.5.2.1.1. 5 BW/SEF. Flight safety will actively manage the use of the shotgun on the airfield. Trained by either CATM, the U.S. Fish and Wildlife Service (USFWS), or State run Hunter Safety Course and then given Minot AFB specific training by 5 BW Flight Safety and USDA, authorized personnel will use shotguns to scare or depredate birds on or around the airfield. (See Section 1.5.5. for details concerning shotgun use on the airfield) Pyrotechnics for this weapon will be maintained by Airfield Management and tracked by members listed on the AF Form 68 Munitions Authorization Record. The Account Custodians will track and annotate weekly expenditures per explosive account requirements. Quarterly audits will be conducted IAW Air Force and Air Force Global Strike Command

requirements.

1.5.3. Bioacoustics. Bioacoustic devices offer bird dispersal through the use of species specific alarm or distress calls broadcast from vehicles on the airfield. If available, this system will be used in concert with other control methods.

1.5.3.1. Application. Play the recordings in short intervals to prevent habituation by birds. Operate for 20-30 seconds, and then pause briefly. Repeat as required. Birds should respond by taking flight or becoming alert. These calls are most effective on ring-billed gulls. Pyrotechnics should be used in conjunction with bioacoustics, gas cannon, and/or depredation to enhance dispersal. Bioacoustics and pyrotechnics will be used on observed bird habitats or in response to requests from the Tower/Supervisor of Flying (SOF).

1.5.4. Propane Gas Cannons. Propane gas cannons offer effective bird dispersal, especially when used at dawn or dusk. However, cannons must be relocated frequently to avoid habituation. These devices are effective on waterfowl, pheasants, and other game birds, and may also be used for gulls and blackbirds. Airfield Management will activate the cannons at their discretion or when directed by the SOF or 5 BW/SEF. Ensure 5 SFS/Central Security Control (CSC) is advised prior to gas cannon operation. During periods of frequent use, the cannons will be relocated every 2 weeks. Ensure the propane tanks are full prior to each migration season.

1.5.5. Depredation. Depredation provides a lethal alternative to mitigate bird hazards on the airfield. This section outlines the procedures, coordination efforts, and forms required to perform a safe and effective bird depredation program by the Minot AFB Depredation (MAD) Team on the Minot AFB airfield. **Note:** Depredation must occur in conjunction with other passive and active measures.

1.5.5.1. General. The use of lethal force reinforces paired-response behavior, conditioning wildlife to avoid the airfield environment completely or react rapidly to government vehicles and operators accomplishing BASH measures.

1.5.5.2. MAD Team Personnel. 5 BW/SEF, the Minot AFB Wildlife Biologist, 91 MW/SE, Airfield Management, and other individuals identified by 5 BW/SEF as necessary for active depredation, are the only personnel authorized to depredate on the airfield and will be trained IAW requirements outlined in section 1.5.4.3. of this publication.

1.5.5.3. Training. Personnel authorized to depredate will obtain or receive comprehensive training in the following areas:

1.5.5.3.1. USAF Motor Vehicle License. Members will obtain a valid AF Form 2293 prior to driving government vehicles.

1.5.5.3.2. Flight Line Driving License. Members will obtain a flight light driving license prior to driving on the airfield IAW MAFBI 11-250.

1.5.5.3.3. 5 BW/SEF Depredation Training. Members will be trained on firearm restrictions on the airfield, acceptable firing areas and directions, and any safety issues regarding employment of the firearms on Minot AFB, and proper handling of animal remains.

1.5.5.3.3.1. In addition, all personnel employing firearms on Minot AFB in support of the BASH program will complete training as listed in 1.5.5.3.3.1.1 or 1.5.5.3.3.1.2.

1.5.5.3.3.1.1. USAF Ground Weapons Training Certification (M-870). Members will obtain training and qualify in the M-870 prior to using the shotgun. Previously trained individuals will maintain currency and accomplish additional training as required.

1.5.5.3.3.1.2. Hunter's Safety Education Training. Members will successfully complete a governmentally run hunter's safety course prior to depredating birds on the airfield. Members are required to produce the documentation of completion of this training prior to engaging in wildlife depredation on Minot AFB.

1.5.5.4. Application. Due to the hazardous nature of depredating birds in an active airfield environment, coordination between base elements remains of paramount importance. This plan requires comprehensive inter-agency support and cooperation in order to effectively mitigate risks to personnel, aircraft, vehicles, and structures. Once it is determined that the bird condition warrants depredation, the following actions will be accomplished:

1.5.5.4.1. Airfield Management. Airfield Management maintains the AF Form 68 and 250 rounds of 5 BW/SEF or Minot AFB Wildlife Biologist-approved 12-gauge ammunition and 250 rounds of Shell Cracker/Shot Tell at Airfield Management.

1.5.5.4.1.1. Personally owned firearms. All members utilizing personally owned firearms will abide by all applicable federal, state, and Minot AFB directives on the possession, transport, securing, and employment of firearms.

1.5.5.4.2. Coordination. Prior to employing firearms on the flight line, Depredation Team members will notify Airfield Management of intent to depredate and estimated time when depredation activities will be complete. Airfield Management will then inform 5 SFS and command post of the impending depredation actions and estimated time of completion. Note: If depredation actions will continue past the estimated time of completion, members will notify Airfield Management of the new estimated time of completion. Airfield Management will then inform 5 SFS and command post of the new time.

1.5.5.4.3. Communication. Depredation Team members will maintain positive two-way communication with the Tower at all times. If directed by Tower to depart the active runway environment, members will immediately respond to the call, do a "quick" inventory of equipment, and exit the active runway.

1.5.5.4.4. Approved lines of fire. Approved lines of fire include from the infield, south across the runway. Individuals will not fire towards Taxiway Echo or the buildings on the infield. Firearms will not be fired in the direction of the Tower, taxiing aircraft, vehicles, structures, or any other background that can hold personnel or property. See Attachment 3 to this publication for firing zones and restricted areas. Be observant for vehicles or aircraft in immediate line of fire and

immediately cease fire for any encroachment. The area of operations is defined within the confines of the airfield, not closer than 200 yards of any building, road, other vehicle or aircraft, and outside all security areas. 5 BW/SEF personnel may depredate at any location on the airfield when necessary for safety of flight.

1.5.5.4.5. Depredating members will stay in contact with all shooters at all times and ensure safe lines of fire are maintained.

1.5.5.5. Individuals employing depredation will adhere to this instruction and MAFBI 11-250 guidance at all times. All expended shells will be maintained for inventory upon completion of depredation. Return all expended shells to comply with explosive account requirements and limit Foreign Object Debris (FOD) on the airfield. During periods when not actively depredating, the shotgun(s) will be returned an approved (by 5 BW/SEF) and closed gun case.

1.5.5.6. All animal remains will be properly handled and surrendered to 5 BW/SEF for disposal.

1.5.5.7. Additional Rules of Engagement. The following will be accomplished to ensure the safe use of depredation in BASH control measures:

1.5.5.7.1. Only shot approved by 5 BW/SEF or the Minot AFB Wildlife Biologist will be used.

1.5.5.7.2. 5 BW/SEF and Airfield Management will ensure their respective storage of ammunition and firearms are accomplished IAW this instruction, DoD 5100.76-M, AFI 31-101, AFI 31-101 AFGSC Supplement, and MAFBI 31-101.

1.5.5.7.3. A letter of qualified shooters and training documentation will be maintained by 5 BW/SEF, Airfield Management, and 91 MW/SE, for their respective members of the Depredation Team. The qualified shooter list will be reviewed annually.

1.5.5.7.4. Patrol members will cease firing NLT 10 minutes prior to aircraft movement on the runway to avoid scaring birds into the flight path of departing or arriving aircraft to include UH-1Ns. They will carry and reference a current B-52 flight schedule, scheduled UH-1 flight summary, and transient aircraft schedule.

1.5.5.7.5. Weapons and munitions storage at Airfield Management will be accomplished with an authorization letter from the 5 OSS/CC with coordination through 5 BW/SE. The 5 OSS commander will endorse the letter and forward it to the Airfield Management. A copy will be maintained at Airfield Management.

1.5.5.8. Government Policy and Regulations. In order to be in compliance with governing directives, the following will be accomplished:

1.5.5.8.1. The 5 BW Wildlife Biologist (or 5 CES/CEAN and 5 BW/SEF, in absence of a Wildlife Biologist) will maintain, and be ready to produce, current depredation permits with all applicable agencies at all times. Only the species annotated on the permit will be taken. However, “Emergency Take”, is authorized on all non-threatened and non-endangered species if a significant potential or active danger to aircraft is imminent. All “Emergency Take” actions will be reported to the permit maintainer and properly reported according to

permit guidelines. "Emergency Take" guidelines will be included as part of MAD Team training.

1.5.5.8.2. Take numbers authorized by permit from the United States Fish and Wildlife Service (USFWS) will not be exceeded without prior approval. POC is the current depredation permit holder. A record of the number of birds taken, including species, must be maintained by 5 BW/SEF. Use Attachment 4 to this publication. Carcasses of birds must be disposed of immediately. Current permits prevent keeping of bird carcasses for any reason.

1.5.5.8.3. The following describe changes in USFWS policy on the taking of migratory birds.

1.5.5.8.3.1. Air Force installations must have a depredation permit issued by the USFWS prior to any take of migratory birds necessary for health or safety reasons, including BASH program implementation.

1.5.5.8.3.2. Federal agencies are still bound by the Endangered Species Act (ESA). Consult with the USFWS informally to ensure take operations are handled in accordance with the ESA.

1.5.5.8.3.3. Installations must comply with migratory bird treaties entered into between the U.S. and other nations. Guidance or clarification can be attained through the 5 BW Wildlife Biologist and/or 5 CES Environmental office.

1.5.5.8.3.4. Federal contractors and volunteers are not exempt from the mandates of the Migratory Bird Treaty Act.

1.5.5.8.3.5. Although federal agencies are normally not bound by state laws pertaining to migratory birds, AFI 32-7064, para. 7.1.1 directs installations to protect state-listed endangered, threatened, or rare species when practical. Minot AFB will coordinate proposed takes with the North Dakota Game and Fish department and/or other stakeholders and be sensitive to the state's concerns.

1.5.5.8.3.6. Any proposal to take, or otherwise impact, migratory bird species is subject to the National Environmental Policy Act (NEPA) (42 USC 4321-4347) and AFI 32-7061, *The Environmental Impact Analysis Process* (EIAP) (32 CFR 989). For emergency situations, MAJCOMs and installations will follow the procedures outlined in AFI 32-7061, Section 4.8.2, *Emergency Procedures*.

1.5.5.8.3.7. When the decision has been made to depredate, installations shall prepare an administrative record to document the "take."

1.5.5.8.3.8. Each Air Force installation located in the U.S. or its territories will:

1.5.5.8.3.8.1. Apply for a depredation permit from the USFWS

1.5.5.8.3.8.2. Apply for any required state permits.

1.5.5.8.3.8.3. Consult with the USFWS informally on issues of bird

conservation.

1.5.5.8.3.8.4. Retain records of take (or any other activity) of species regulated under the Migratory Bird Treaty Act and Bald & Golden Eagle Protection Act.

1.5.6. Radio Controlled Aircraft. Remote controlled (RC) aircraft provide a continual method of harassment for airborne threats. Their use is most effective against gull populations on and around the airfield. When flown by a skilled operator, RC aircraft will disperse avian threats. The following procedures identify standard operating procedures and required airfield coordination requirements.

1.5.6.1. Personnel. Only qualified volunteers will conduct RC operations on the airfield. Completion of all training requirements will be monitored by 5 BW/SEF.

1.5.6.2. Equipment. When reporting to the airfield, qualified members will proceed with the following equipment:

1.5.6.2.1. PPE.

1.5.6.2.1.1. Hearing Protection.

1.5.6.2.1.2. Leather Gloves.

1.5.6.2.2. LMR.

1.5.6.2.3. Vehicle with two-way radio.

1.5.6.2.4. RC Aircraft.

1.5.6.2.5. RC Aircraft Launch/Recovery Kit.

1.5.6.3. 5 BW/SEF will determine the need for RC aircraft commensurate with the level of bird activity on the airfield and congestion of actual aircraft in the local traffic pattern. Planned RC aircraft flight periods will be published in the weekly 5 OG flight schedule to the maximum extent possible. When notified of RC aircraft operations qualified individuals will proceed to 5 BW/SEF for equipment inventory and checkout. A log will be used to record equipment taken to the airfield, individuals flying the RC, and sign in/out times. This documentation will aid FOD prevention and location of personnel and equipment. Upon completion of initial checkout, 5 OSS/A-3A will notify all applicable agencies prior to the RC team proceeding to the airfield. The RC team will depart with all required equipment listed at 1.5.5.2 and a copy of the local flying schedule. The RC team will contact Tower for access onto the active runway using both the vehicle's two-way radio and the LMR. Once established on the airfield, the RC team will comply with the following:

1.5.6.3.1. Communication. Two people are required to operate the RC aircraft, a qualified person to actively fly and the other to act as a safety observer and maintain contact with the Tower on the ramp net. If personnel leave the vehicle, they must be in contact with the Tower using an LMR. **Note:** In the case of lost communication with the Tower, immediately terminate use of the RC aircraft and exit the airfield environment.

1.5.6.3.1.1. Before using the RC aircraft, contact the SOF, Tower, Airfield

Management, and 54 HS duty officer at 723-6352/6353 by cell phone to ensure no full-scale aircraft are in the pattern or are expected to take off/land while using RC aircraft.

1.5.6.3.1.2. Confirm that the Minot AFB Tower added the appropriate information to ATIS.

1.5.6.3.1.3. Contact the LMR shop at 3-2412 in order to track any interference created by RC aircraft. RC aircraft are FCC Part 15 devices and may interrupt LMR communications.

1.5.6.3.1.4. When RC flying is complete notify the Tower and state "off of the active runway environment". **Note:** If RC aircraft operations are being conducted and Tower receives notification that an aircraft is on final to land, tower will immediately contact the RC team and instruct them to clear the runway. If an emergency situation develops that prevents the RC team from an expeditious recovery of the aircraft, the RC operator will crash land or ditch the aircraft on the infield near the Tower.

1.5.6.3.2. The RC aircraft will not be operated on the airfield outside of operating hours established by Airfield Management.

1.5.6.3.3. Restrictions. In the interest of safety and security, the following guidelines will be strictly adhered to:

1.5.6.3.3.1. RC flying will not be accomplished by anyone except those who have successfully passed the 5 BW Flight Safety RC training program.

1.5.6.3.3.2. RC flights will only occur during daylight hours.

1.5.6.3.3.3. RC aircraft operations will not take place during inclement weather. Prevailing ceiling and visibility must be greater than 400 feet and 1 mile (400-1). Contact 5 OSS/OSW at 723-6385/6386 for local weather conditions.

1.5.6.3.3.4. RC aircraft operation will not take place when sustained winds exceed 20 knots.

1.5.6.3.3.5. No RC flying will be accomplished unless radio contact is established and maintained with the Tower.

1.5.6.3.3.6. RC flying will not take place when full-scale airborne aircraft are within 5 miles of the airfield. Exception: When a full-scale aircraft is waiting to land due to BWC SEVERE, RC flights may be accomplished but require 5 OG approval.

1.5.6.3.3.7. No RC flying will take place within 500 feet of any non-RC aircraft.

1.5.6.3.3.8. No RC flying will take place within 300 feet of the WSA, MPA, APA, Missile Turn-Around Pad, or any structure on the airfield. This distance is measured horizontally.

1.5.6.3.3.9. Do not over fly taxiing or parked aircraft, vehicles, or personnel.

1.5.6.3.3.10. The RC aircraft must be flown close enough to the operator to ensure safe operation and recovery. At Tower's request, the RC team will land the RC aircraft and depart the active runway or airfield environment.

2. Organizational Taskings and Responsibilities.

2.1. 5th Bomb Wing.

2.1.1. Vice Wing Commander (5 BW/CV):

2.1.1.1. Oversees the BASH program at Minot AFB.

2.1.1.2. Chairs the BHWG.

2.1.1.3. Approves/disapproves BHWG recommendations.

2.1.1.4. Issues specific guidance to the affected squadrons concerning actions required to implement this plan.

2.1.2. Command Post (5 BW/CP):

2.1.2.1. Notifies the 5 OG/CC, SOF, 54 HS, and Safety (SE) when BWC MODERATE or SEVERE is declared/cancelled.

2.1.2.2. Notifies inbound aircraft on 321.0/311.0 of any BWC above LOW. Include location, movement, and other information concerning bird activity driving the BWC.

2.1.2.3. Notifies 5 BW/SEF and other base agencies of bird strikes as applicable.

2.1.2.4. Reports damaging bird strikes IAW Section 4 of this publication.

2.1.3. Public Affairs (5 BW/PA): PA will participate as required by local events. Upon request, PA will draft a communication plan to inform base personnel, dependents, and the general public on the hazards of uncontrolled bird activity and the measures being taken to minimize the threat. Public affairs personnel are required to clear all information to be disseminated publicly or through outside press agencies through 5 BW/SE to ensure sensitive information or improper messages are not released. **Note:** Include 91 MW/CC if incident involves a 91 MW aircraft.

2.1.3.1. Assumptions.

2.1.3.1.1. Local interest. This event is a normal activity and has little potential to generate press about aircraft operations. Possible target markets for this information are the Northern Sentry, Minot Daily News, West Dakota Radio Network, KMOT, KXMC, KBQQ, KYYX, KHRT and KRBQ. Key messages include the:

2.1.3.1.1.1. Reliability of B-52H/UH-1N system(s).

2.1.3.1.1.2. Hard work necessary to ensure flying operations are conducted.

2.1.3.1.1.3. Daily challenge of flight operations.

2.1.3.1.1.4. Talent of maintenance and operations crews keeping system ready for mission.

2.1.3.1.1.5. Teamwork between on-base agencies to ensure safest possible flight environment.

2.1.3.1.1.6. Comprehensive measures provide necessary information about bird migration, patterns of flight, concentrations and methods for identifying new bird threats to all aviators in area, not just those operating out of Minot AFB.

2.1.3.1.2. Regional interest. More outlying communities may want information about activity as bird migration may move through their "neighborhood." Markets include the Bismarck Tribune, Prairie Public Radio and Television, as well as newspapers that serve the area outside coverage of the local Minot press. Key messages to them include those above for local interest besides:

2.1.3.1.2.1. Basic flight safeguards of base aircraft.

2.1.3.1.2.2. System alerts and distribution.

2.1.3.1.2.3. Concern for environmental impact of operations and impact on flight operations are done simultaneously.

2.1.3.1.3. National Interest. Limited to short "spot" news, if any at all. Coverage would state the bare facts about operations, along with identifying information about general aircraft procedures. Possible markets include the Air Force Times, Airman Magazine, Air Force Radio and Air Force Television News, and possibly CNN or another independent network, such as the Military Channel or C-SPAN.

2.1.3.1.4. Publication. The 5 BW/CC and 91 MW/CC desire accurate information about this activity in all available press.

2.1.3.1.5. Access. All 5 BW personnel contacted by media representatives will refer the questioner to 5 BW/PA who will clear answers through 5 BW/SEF. Photographs of BASH activities will be provided by 5 BW/SEF upon request or press agents will be escorted by 5 BW/SEF representatives to obtain their own photographs.

2.1.3.1.6. Approval. Final release authority for all activity in this plan rests with the 5 BW/CC or 91 MW/CC.

2.1.3.2. Responsibilities.

2.1.3.2.1. Community Relations (PAC).

2.1.3.2.1.1. Prepare or update fact sheet on bird strike avoidance activity for acceptance by 5 BW/SEF.

2.1.3.2.1.2. Consider including 5 BW/SEF developed short summary of BASH avoidance activity in tours or speeches occurring during the action. The summary could include:

2.1.3.2.1.2.1. Basic explanation of BASH mitigation purpose.

2.1.3.2.1.2.2. How BASH activities take place.

2.1.3.2.1.2.3. Other information items or messages listed in above.

2.1.3.2.1.3. Answer questions from visitors about BASH avoidance activity after consulting with 5 BW/SE. Share those answers with members of the 5

BW/PA staff.

2.1.3.2.2. Media Relations. (PAM). Provide three phases of coverage opportunities to interested members of the press, after approval by 5 BW/CC. 5 BW/PAM must ensure all media have equal access to supporting images and experts that support their particular medium. During response contingencies (accident, attack, etc.), provide timely, accurate information to working media IAW AFI 35-101, as amended by ACC, AFSPC and USSTRATCOM. Most information in these instances will be released on a response to query basis.

2.1.3.2.2.1. Announcements must occur before activity on the aircraft ramp begins. Announcements should explain BASH avoidance theories, give an approximate time line for complex activity, and explain the benefits of this process. Other messages should come from information in 2.1.3.1 above.

2.1.3.2.2.2. Announcements during work should consist of news opportunities that positively support BASH avoidance information messages. Examples of this are:

2.1.3.2.2.2.1. Interviews with working group director, 5 BW/CC, technicians, crews, etc.

2.1.3.2.2.2.2. Opportunities to film/photograph crews in the field during bird avoidance activity.

2.1.3.2.2.2.3. Other opportunities, as approved by 5 BW/CC.

2.1.3.2.2.3. Post-movement support should "wrap-up" the conclusion of BASH avoidance activity and give an unclassified and properly vetted report on its success. Other opportunities should be a part of the information effort at this point.

2.1.3.2.2.4. Information prepared for news releases, photo opportunities, interviews, and other press functions must go to staff members of 5 BW/PA for assistance to their information support efforts.

2.1.3.2.3. Internal information (PAI). Post coverage of BASH activities to the Minot AFB Web Site and update Rolling News on the Commander’s Access Channel.

2.1.3.2.3.1. Prior to each migration season, 5 BW/PAI may post an article on the Minot AFB Web site explaining the program and the activities base members may observe.

2.1.3.2.3.2. Rolling News may highlight BASH activities which may cause concern to base members due to timing of the use of the equipment in the program.

2.1.3.2.3.3. 5 BW/PAI will conduct internal activities at the request of 5 BW/SE outside of above listed times.

2.1.3.2.4. Management. Ensure public affairs is "in the loop" when this plan takes effect. Early notification ensures PA staff are not blindsided by activity that has a possible interest to local community.

2.1.4. Base Legal (5 BW/JA): JA will be a primary member of the BHWG and will provide a representative at all semi-annual meetings and any additional meetings as required. They will advise the BHWG on any legal issues that may arise.

2.1.5. Flight Safety (5 BW/SEF):

2.1.5.1. Acts as the OPR for this BASH plan.

2.1.5.2. Monitors base-wide compliance with AFPAM 91-212 and this instruction.

2.1.5.3. Reports all bird/wildlife strikes and hazards per AFI 91-202, AFI 91-204, AFPAM 91-212, this regulation, and all applicable guidance.

2.1.5.4. Coordinates with aircrews and maintenance personnel for the collection of bird remains following bird strikes. Sends non-fleshy bird remains for identification to the Smithsonian Institute IAW AFI 91-223.

2.1.5.5. Coordinates planning and information distribution of the BHWG.

2.1.5.6. Reports BASH trends, activities, and statistics during safety meetings, including BHWG recommendations and actions following the BHWG's semi-annual meeting. Distributes meeting agendas and minutes to tasked agencies.

2.1.5.7. Disseminates BASH data to the BHWG and flying units.

2.1.5.8. Provides the BHWG with current BASH guidance from higher headquarters, AF Safety Center, USFWS, and other agencies. Publish current safety procedures and guidance on handling bird remains and cleaning bird remains from aircraft.

2.1.5.9. Obtains additional information on bird/wildlife activities through contact with local wildlife agencies.

2.1.5.10. Monitors bird activity and strike statistics. Advises the BHWG chairperson when additional meetings are deemed necessary due to elevated risk or additional planning requirements.

2.1.5.11. Establishes a bird hazard awareness program in conjunction with squadron flight safety officers, to include films, posters, and information on local bird hazards and reporting procedures.

2.1.5.12. Evaluates and inspects tasked agency’s passive and active hazard control methods.

2.1.5.13. Assists in monitoring bird and wildlife activity through daily airfield checks. Recommends elevation/reduction of the BWC to the SOF or Airfield Management.

2.1.5.14. Coordinates depredation program. Trains, observes, and monitors individuals implementing depredation measures used to reinforce other bird/wildlife control methods. Coordinates with 5 CES/CEAN to obtain the necessary permits required to depredate birds and wildlife presenting a threat to flight safety.

2.1.5.15. Maintains RC aircraft per requirements. Ensures proper training of individuals prior to their use of the RC aircraft.

2.1.5.16. Contacts the BASH team at HQ AFSC/SEF, Kirtland AFB, NM, for advice on the effectiveness of other devices. Oversees the use of these devices to evaluate effectiveness and makes suggestions for improvement.

2.1.5.17. Monitors aircrew mission briefings to ensure existing BASH information is briefed.

2.1.5.18. Reviews all proposed low-level routes and training areas for potential BASH conflicts with the 5 OG/CC.

2.1.5.19. Trains new 5 OG SOFs on their responsibilities outlined in this plan. Conducts annual refresher training prior to 1 March for qualified SOFs.

2.1.5.20. Incorporates seasonal bird hazards as regular topics during flying safety meetings. Uses movies, articles, and other information, as appropriate, to maintain awareness.

2.1.5.21. Provides two qualified members for the MAD Team. Members will be trained in accordance with guidance in this publication (section 1.5.5.6). 5 BW/SE personnel should attend the initial M-870 (shotgun) training through CATM as early as scheduling will allow.

2.1.5.22. Contacts 23/69 BS/DOS to determine radio controlled aircraft activity prior to final schedule release. Annotates scheduled RC aircraft flights on the schedule to the maximum extent possible.

2.1.5.23. Conducts and documents checks of perimeter fence gates.

2.1.6. 5th Operations Group.

2.1.6.1. 5th Operations Group Commander (5 OG/CC):

2.1.6.1.1. Declares/upgrades/downgrades to bird watch conditions IAW Section 4 of this publication.

2.1.6.1.2. Issues specific guidance for aircrews and SOFs on procedures to be followed during changing BWCs (Section 4, this publication).

2.1.6.1.3. Issues specific guidance to the 5 BW/CP concerning actions required to implement this plan (See Section 4 of this publication).

2.1.6.1.4. Makes operational changes to avoid areas and times of known hazardous bird concentrations, mission permitting. Considers the following during periods of increased bird activity:

2.1.6.1.4.1. Raising the pattern altitude.

2.1.6.1.4.2. Changing pattern direction to avoid bird concentrations.

2.1.6.1.4.3. Avoiding takeoffs and landings within the 2-hour window at dawn and dusk (+/- 1 hour).

2.1.6.1.4.4. Limiting pattern activity (restricting approaches or calling for full-stop landings).

2.1.6.1.4.5. Conducting transition training at off-station locations.

2.1.6.1.4.6. Raising operating altitudes in low-level training areas.

2.1.6.1.4.7. Limiting time and speed in low-level routes to the minimum required for training.

2.1.6.1.4.8. Canceling training along low-level routes.

2.1.6.2. SOF:

2.1.6.2.1. Coordinates bird control IAW with this instruction and AFI 11-418 MAFB Sup 1.

2.1.6.2.2. Declares and disseminates OG/CC BWC based on personal observation, AHAS website **www.usahas.com**, Airfield Management observation, pilot reports, Tower observations, and 5 BW/SEF recommendations. Implements AFGSC traffic pattern procedures during increased bird activity. See Section 4 of this publication.

2.1.6.2.3. Receives initial and annual training from 5 BW/SEF on BASH techniques and responsibilities.

2.1.6.3. 5th Operations Support Squadron (5 OSS).

2.1.6.3.1. Airfield Management Operations – Airfield Management (5 OSS/A-3A): Airfield Management personnel will immediately respond to the airfield upon notification of bird movements that may affect aircraft operations.

2.1.6.3.1.1. Declares/upgrades/downgrades of BWCs IAW Section 4 of this publication.

2.1.6.3.1.2. Participates in MAD Team and acts as the primary responders when birds on the airfield create a hazardous condition IAW Section 4 of this publication. Airfield Management will have immediate access to bioacoustic and pyrotechnic equipment for bird dispersal. The BASH pyrotechnic equipment is stored at Airfield Management in the flammable storage locker. 5 OSS/OSAA will ensure personnel are properly trained to use the equipment.

2.1.6.3.1.3. Removes bird and animal carcasses from the airfield or coordinates with 5 CES to do so. This is to avoid attracting scavengers to the airfield environment. Forward remains, which may have been caused by collision with aircraft, to flight safety (5 BW/SEF) for identification.

2.1.6.3.1.4. Notifies security forces when significant bird scare activities will be necessary on the airfield IAW with QRCs maintained at the Airfield Management building.

2.1.6.3.1.5. Monitors bird population, grass height, drainage ditches, etc., and reports problems to the appropriate OPRs for modifying or eliminating problems.

2.1.6.3.1.6. Coordinates changes in the BWC with the 5 BW/CP, 54 HS, 5 BW/SEF, and others as appropriate when notified by the Tower or the SOF directly.

2.1.6.3.1.7. Notifies Entomology and 5 BW/SEF when large animals, like

deer, require removal or disposal.

2.1.6.3.1.8. Maintains a RC aircraft notification in the FLIP AP/1 Supplementary Airport Remark Section for Minot AFB.

2.1.6.3.2. Air Traffic Control

2.1.6.3.2.1. Advises 5 OG, SOF, airborne aircraft, and Airfield Management of observed bird activity on the airfield or in the traffic pattern. Forward this information to aircrews, SOF, and Airfield Management.

2.1.6.3.2.2. Advises airborne aircraft of any possible pop-up radar targets or any probable bird hazards observed visually.

2.1.6.3.2.3. Provides Airfield Management, 5 BW/SEF, and MAD Team members runway access for dispersal measures during periods of heightened bird activity. **Note:** Dispersal teams may need priority access onto the runway with aircraft on final to alleviate potentially hazardous situations during BWC MODERATE or SEVERE.

2.1.6.3.2.4. Provide bird activity information to pilots IAW FAA JO 7710.65, para 2-1-22.

2.1.6.3.2.5. Advises the Maintenance Operations Center (MOC) of declaration/changes/downgrades to the BWC.

2.1.6.3.3. Weather (OSS/OSW): Advise aircrews and Airfield Management when possible bird targets appear on weather radar. **Note:** The National Weather Service controls the NEXRAD radar settings, making identification of bird flocks difficult.

2.1.6.4. 23d/69th Bomb Squadrons.

2.1.6.4.1. 23d/69th Bomb Squadron Commanders:

2.1.6.4.1.1. Ensures personnel participate in the BASH program by promptly reporting all bird strikes and hazardous conditions IAW Section 4 of this publication and AFPAM 91-212.

2.1.6.4.1.2. Coordinates unit flying activities to minimize exposure to local and migratory bird activity.

2.1.6.4.1.3. Ensures 23 BS/69 BS DOS flying schedules adequately assess BASH risks. Ensures that missions are not launched/recovered during periods of high bird activity (+/- 1 hour of dawn and dusk, year round to the maximum extent possible). Exceptions must be annotated and approved by 5 OG/CC. A signed 21-165 is one method of approval.

2.1.6.4.1.4. Ensures that bird hazard data is considered when low-level routes or training areas are selected based on BAM, Low-Level Route Analysis, and AHAS.

2.1.6.4.2. 23d/69th Bomb Squadron Flight Safety Officer/Additional Duty Flight Safety Officer (23/69 BS/FSO):

2.1.6.4.2.1. Provides current bird activity data to aircrews by providing access to BAMs, AHAS, and strike trends during Virtual Base Operations (VBO) briefs. Posts BASH updates, trends, and hazards to the squadron safety board.

2.1.6.4.2.2. Ensures that monthly safety meetings include BASH related information as appropriate for seasonal conditions. Movies, articles, and other media will be used as appropriate to maintain awareness.

2.1.6.4.2.3. Provides current copies of AF Form 853, *Air Force Bird Strike Report*, to aircrews.

2.1.6.4.2.4. Assists 5 BW/SEF with report writing as required.

2.1.6.4.2.5. Assists 5 BW/SEF with duties outlined in section 2.1.5. of this instruction when requested by 5 BW/SEF during periods of minimum manning.

2.1.6.4.3. 23d/69th Bomb Squadron Assistant Director of Operations - Scheduling:

2.1.6.4.3.1. Builds and executes schedules that incorporate BAM data for airfields the sortie will transit and low level activity. Includes this data on the actual scheduling product for review by leadership and crews flying the mission.

2.1.6.4.3.2. Ensures 23 BS/69 BS DOS flying schedules adequately assess BASH risks. Ensures that missions are not launched/recovered during periods of high bird activity (+/- 1 hour of dawn and dusk, year round to the maximum extent possible). Exceptions must be annotated and approved by 5 OG/CC. A signed 21-165 is one method of approval.

2.1.6.4.3.3. Ensures that scheduled low-level activity is not planned with BAM moderate or severe hazards associated with the route.

2.1.7. 5th Maintenance Group.

2.1.7.1. 5th Maintenance Group Commander (5 MXG/CC):

2.1.7.1.1. Issues specific guidance to maintenance personnel (to include Transient Alert) for reporting hazardous bird activity to the SOF or Airfield Management, to include assisting in monitoring bird and wildlife activity as part of daily operations on the flight line.

2.1.7.1.2. Issues specific guidance to maintenance personnel (to include Transient Alert) for reporting all discovered bird strikes on aircraft, whether damage occurred or not, to the Maintenance Operations Center.

2.1.7.1.3. Issues procedures for the preservation of non-fleshy bird remains (feathers, feet, or beaks) during non-duty hours if discovered on an aircraft. Even the smallest fragment of a feather should be collected and saved for pickup by 5 BW/SEF for identification.

2.1.7.1.4. Ensures maintenance buildings on the airfield do not become sanctuaries for birds. Denies access to locations suitable for bird nests and

removes nest buildups as required. If owning squadron is unable to remove nest from facility, then they may request fire department support to wash bird nests from flight line buildings (Note: All other options should be exhausted before fire department support is requested)

2.1.7.1.5. Provides aircraft de-icing shop support to wash bird nests from flight line buildings, if needed.

2.1.7.2. MOC:

2.1.7.2.1. Transmits any declarations/changes/downgrades of the BWC over maintenance radio nets.

2.1.7.2.2. Notifies maintenance personnel, over the maintenance radio nets, anytime the pyrotechnics, bioacoustics, propane gas cannons, shotguns or radio controlled aircraft will be used on the airfield.

2.1.7.2.3. Notifies 5 BW/CP, 5 MXG/MXQ, and 5 BW/SEF when bird/wildlife strikes are discovered.

2.1.7.3. 5th Maintenance Group Quality Assurance (5 MXG/MXQ):

2.1.7.3.1. Monitors bird strike reporting requirements outlined in section 4 of this publication.

2.1.7.3.2. Collects blood, feather, and non-fleshy remains from bird and wildlife strikes. Even the smallest fragment of a feather should be collected and saved. All remains are to be handed over to 5 BW/SEF within 1 duty day of collection.

2.1.7.4. 5th Maintenance Operations Squadron Commander (5 MOS/CC): Ensures that the Maintenance Operations Center (MOC) reports all bird strikes to 5 BW/CP, 5 MXG/MXQ, and 5 BW/SEF.

2.1.7.5. 5th Aircraft Maintenance Squadron Commander (5 AMXS/CC): Ensures personnel participate in the BASH program by promptly reporting all bird strike activities and hazardous conditions IAW Section 4 of this publication and AFPAM 91-212.

2.1.7.6. 5th Maintenance Squadron Commander (5 MXS/CC): Ensures personnel participate in the BASH program by promptly reporting all bird strike activities and hazardous conditions IAW Section 4 of this publication and AFPAM 91-212.

2.1.8. 5th Mission Support Group

2.1.8.1. 5th Mission Support Group Commander (5 MSG/CC): ensures agencies tasked by this plan and AFPAM 91-212 accomplish required actions.

2.1.9. 5th Civil Engineer Squadron (5 CES/CC):

2.1.9.1. Provides a natural resource representative to the BHWG to monitor and advise the group on environmental modification.

2.1.9.2. Develops procedures for removal or control of bird attractants.

2.1.9.3. Initiates surveys and writes environmental impact assessments and statements as required by law.

2.1.9.4. Conducts surveys IAW Attachment 2 of this publication.

2.1.9.5. Corrects environmental conditions that increase bird/wildlife strike potential.

2.1.9.6. Uses land management practices that reduce bird/wildlife strike potential.

2.1.9.7. Modifies airfield habitat consistent with runway lateral and approach zone management criteria per AFMAN 32-1123. Habitat modification beyond the 1,000 feet distance criterion is desired to further reduce bird strike potential.

2.1.9.8. Incorporates the control methods outlined in Section 1.4. of this publication, Passive Controls.

2.1.9.9. Provides fire department support to wash bird nests from flight line buildings, if needed.

2.1.9.10. In the absence of a 5 BW Wildlife Biologist, obtains and files depredation permits, keeps all permits current, and renews accordingly.

2.1.9.11. Maintain airfield grass height to between 7" and 14".

2.1.9.12. Ensures flight line fencing is kept in good repair. Executes monthly inspections of flightline fencing and repairs any problems discovered immediately.

2.1.10. Visual Information Services (5 BW/PA): Provides graphics support to publicize bird hazards and the actions taken to minimize them as required. Prints charts referenced in Attachment 2 of this publication and BASH-related media.

2.1.11. 5th Security Forces Commander (5 SFS/CC): If requested, provides courtesy storage of BASH shotguns and ammunition, ensures EAL meets AFI requirements, and receives coordination from BASH agencies when pyrotechnics, depredation, and gas cannons are used on the airfield.

2.1.12. Associated Tenant Units

2.1.12.1. 91st Missile Wing Flight Safety (91 MW/SEF):

2.1.12.1.1. Provides a representative for the BHWG and supports the base BASH program as appropriate.

2.1.12.1.2. Can provide a member for the MAD Team. Member will receive required training as noted in this instruction (section 1.5.5.6). 91 MW/SEF personnel will be on call throughout the bird hazard season on a rotating basis.

2.1.12.1.3. Reports all bird/wildlife strikes and hazards per AFI 91-202, AFI 91-204, AFPAM 91-212, and Section 5 of this publication.

2.1.12.2. 54th Helicopter Squadron Commander (54 HS/CC):

2.1.12.2.1. Issues specific guidance to maintenance personnel for reporting all discovered bird strikes on aircraft to 54 HS/SEF.

2.1.12.2.2. Issues procedures for the preservation of non-fleshy bird remains (feathers) during non-duty hours if discovered on an aircraft. Even the smallest fragment of a feather should be forwarded to 91 MW/SEF for identification.

2.1.12.2.3. Ensures grass mowed around the 54 HS building does not create an

edge effect. This will be accomplished by only mowing the lawn north and east of the parking lot and taxiway to the transient pad. Grass between the 54 HS building and fire department will be maintained at 7-14 inches.

2.1.12.2.4. Ensures accomplishment of responsibilities outlined in Section 5 of this publication.

3. Reports and Forms.

3.1. General. Report all bird and/or wildlife strikes IAW AFPAM 91-212 and AFI 91-204. Successful completion enhances the BASH program at Minot AFB and enables adequate tracking of BASH hazards. 5 BW/SEF will provide AF Form 853s to all flying units, Airfield Management, and maintenance debrief as required.

3.2. Bird/Wildlife Strike Reporting. In the case of a bird or wildlife strikes, tasked units will accomplish the following:

3.2.1. All bird or wildlife strikes on aircraft landing at Minot AFB, whether damage occurred or not, will be reported to the MOC via normal maintenance channels. The aircrew and/or maintenance personnel will complete an AF Form 853 (Air Force Bird Strike Report), available on the web publications page, detailing the bird or wildlife strike. The MOC will notify 5 BW/CP and 5 BW/SE in accordance with the MOC notification checklist. A copy of the completed Form 853 will be faxed by the MOC to 5 BW/SEF.

3.2.2. Aircrews involved in bird/wildlife strikes will fill out an AF Form 853 and provide a detailed account concerning the incident. Forms will be available in flight binders and at maintenance debrief. Submit the completed form with mission paperwork. Maintenance debrief will fax the completed report to 5 BW/SEF.

3.2.3. Maintenance personnel discovering a bird strike will notify the MOC, who will in turn notify the on-duty FOD/DOP Manager or designated representative from Quality Assurance (QA). The FOD/DOP Manager or designated representative from QA will insure that the AF Form 853 is completed and faxed to 5 BW/SEF for all bird strikes. If aircraft damage is suspected or evident, MOC will notify 5 BW/SEF and a safety professional will be dispatched to retrieve samples and investigate BASH evidence. Impound the aircraft if deemed necessary by Air Force Instruction 21-101 and Minot AFB 21-201 Supp. 1.

3.2.4. Airfield Management personnel will contact 5 BW/SEF in the event that bird remains are discovered on the airfield. An AF Form 853 will be accomplished if evidence suggests that bird remains were caused by impact with an aircraft. Follow guidance outlined in section 3.3. of this publication and then contact Minot AFB civil engineering for removal and disposal of remains. Airfield Management will assist transient aircrews in completing the AF Form 853 and will obtain unit/organization information when damage occurs. Fax the completed report to 5 BW/SEF.

3.2.5. 5 BW/SEF will compile all reported bird strike data for the 5 BW and input the information into the Air Force Safety Automated System (AFSAS). 91 MW/SEF will accomplish the same for 54 HS bird strikes.

3.2.6. Bird strike damage meeting AFI 91-204 Class A, B, or C requirements will be reported by 5 BW/SEF or 91 MW/SEF immediately.

3.2.7. Bird strike damage meeting AFI 10-206 requirements will be reported by 5 BW/CP.

3.3. Bird Remains Identification:

3.3.1. Individuals discovering bird remains will place non-fleshy bird parts (feathers, beaks, or feet) in a plastic bag and forward to 5 BW/SEF or 91MW/SEF (as appropriate) with a copy of the completed AF Form 853. Blood smears collected on a paper towel and small pieces of a feather may also be used for identification. Even the smallest fragment of a feather should be collected and saved. Only individuals familiar with the Air Force Safety Center guidance on retrieving remains (for example, in QA or 5 BW/SEF) will collect the samples of bird and/or wildlife remains.

3.3.2. 5 BW/SEF or 91 MW/SEF will forward remains to the Smithsonian Institution IAW AFMAN 91-223.

4. 5 BW Flying Operations.

4.1. General. This section outlines rules concerning all 5 BW aircraft. **Note:** 91 MW operators please refer to Section 5 of this publication for guidance.

4.1.1. It is critical to immediately exchange information between ground agencies and aircrews concerning the existence and location of birds that pose a hazard to flight safety. A cautionary advisory will be published in the DoD Flight Information Publication AP/1 under the Supplementary Airdrome Remarks highlighting the bird hazard and their heaviest concentrations during April-May and August-November.

4.2. BWC Codes. Per AFI 11-418, MAFBSUP, the following terminology has been established for rapid communication of bird activity. Bird locations should be given with the condition code. These codes are standard and other terminology is not authorized.

4.2.1. Condition SEVERE. Heavy concentration of birds on or immediately above the active runway or other specific location that represents an immediate hazard to safe flying operation. Supervisors and aircrews must thoroughly evaluate mission needs before conducting operations in areas under condition SEVERE.

4.2.2. Condition MODERATE. Bird activity near the active runway that presents an increased potential for strikes. Further OG/CC clarification defines MODERATE as "Concentration of birds observable in locations which represent a probable hazard to safe flying operations." BWC MODERATE requires increased vigilance by all agencies and supervisors, and extreme caution by aircrews.

4.2.3. Condition LOW. Normal bird activity on or above the airfield with a low probability of hazard.

4.3. Declaring Bird Watch Conditions.

4.3.1. The following personnel comprise the BWC team and are authorized to upgrade/downgrade the bird watch condition. Notification will be IAW Section 4.6. of this publication. 5 OG/CC and SOF (primary), 5 OSS/OSAA (Airfield Management) and 5 BW/SEF (secondary)

4.3.2. When both members of the team are on the flight line, the final decision to upgrade/downgrade the BWC will be made by the highest authority as rank-ordered above. However, before changing the BWC, information from other team members, Flight Safety, pilot reports, and Tower will be considered.

4.3.3. When Tower observes high numbers of birds either visually or on radar, they will inform the SOF or Airfield Management using radio or telephonic communications. Tower will advise the BWC team about raising/lowering the bird watch condition.

4.3.4. Positioning. The following procedures will be used during 5 BW and/or 91 MW aircraft launches or airborne aircraft recoveries into Minot AFB. When under condition SEVERE or when deemed necessary by the SOF or Airfield Management, the following personnel will assume the following positions on the airfield: SOF: Maintain oversight from the Tower, 5 OSS/OSAA: Spread out as necessary on or near the active runway, 5 BW/SEF: Spread out as necessary on or near the active runway

4.3.4.1. If all players are not available on the airfield, or the SOF is in the Tower, the remaining personnel will position themselves based on the situation to best monitor and/or disperse the bird activity. If persistent bird activity exists on the airfield, all players will coordinate efforts listed in section 1.5. of this publication to reduce the threat.

4.3.5. Airfield Management will raise/lower the BWC based on observations and inputs from Tower, and 5 BW/SEF in the absence of the SOF.

4.3.6. During heightened BWCs, active bird control efforts will be employed to reduce the threat. The use of these measures will be implemented IAW section 1.5. of this publication. Continue efforts until the BWC is returned to LOW, darkness precludes effective bird harassment, or all aircraft are recovered.

4.3.7. When bird activity increases and the potential for BWC MODERATE or SEVERE exists, the SOF or Airfield Management will notify 5 BW/SEF, who will then respond to the airfield as the situation and manning warrants.

4.4. Updating the BWC. Once a BWC has been raised above LOW, it is the declaring authority's responsibility to update the condition. Obtain updated information and reassess the bird condition every 15 minutes until the BWC returns to LOW during periods of aircraft activity or one hour prior to takeoffs and landings. The condition can remain the same, be upgraded, or downgraded as necessary. If able, Tower, maintenance personnel, and aircrews will provide bird updates to the SOF or Airfield Management based on observations. The SOF must update Airfield Management when changes to the BWC occur.

4.4.1. The SOF will update the BWC during B-52 operations. At the termination of launches or recovers, the SOF will advise Airfield Management that they are departing the airfield, identify the BWC, and indicate the next time a SOF will be on the airfield.

4.4.2. Airfield Management will update the BWC during normal airfield operating hours in the absence of the SOF. If the BWC remains above LOW after the departure of the SOF, Airfield Management will monitor the airfield and adjust the BWC as the situation demands. During periods of sustained BWC MODERATE, Airfield Management will ensure personnel assess the BWC one hour prior to aircraft activity and every 15 minutes

following that time until the BWC drops to LOW or aircraft either land or depart the airfield. **Note:** The 54 HS accepts responsibility for flying operations during BWC MODERATE and does not require 15 minute BWC updates for Airfield Management. However, if the BWC reaches SEVERE or the 54 HS requests assistance, Airfield Management will respond to the airfield to mitigate risk.

4.5. Flight Restrictions. The following restrictions have been given by the 5 OG/CC to all B-52H pilots based on location and condition. Airborne crews may coordinate with Tower to enter holding during conditions MODERATE or SEVERE while waiting for the condition to return to LOW in order to conduct transition training. However, crews MUST hold at an altitude above bird concentrations. **Note:** The 54 HS/DO is the authority to restrict air operations for the 91 MW helicopters. **Note:** The restrictions associated with each condition do not preclude the aircraft commander's emergency authority to land if fuel status or other emergencies pose a greater risk.

4.5.1. Condition SEVERE:

4.5.1.1. Traffic Pattern. 5 OG/CC approval is required for all takeoffs and landings. Transition training is not allowed. Operational Risk Management must be considered when approving takeoffs and landings during condition Severe. The 5 OG/CC may consider changing runways, delaying takeoffs and landings, diverting aircraft, etc.

4.5.1.2. Low-Level Routes and Training Areas. Avoid specified areas and altitudes.

4.5.2. Condition MODERATE:

4.5.2.1. Traffic Pattern. Takeoffs and full stop landings are allowed. Transition training requires 5 OG/CC approval and will be kept to the minimum required for mission accomplishment.

4.5.2.2. Low-Level Routes and Training Areas. Change flight profile or altitudes to minimize bird hazards.

4.5.3. Condition LOW: Conduct mission requirements as normal. Normal bird activity on or around the airfield presents a low hazard probability.

4.6. Communications. Disseminate BWCs by the following means:

4.6.1. Declaring authority will notify Airfield Management when changing BWC. Airfield Management will contact all associated agencies and run the appropriate QRC.

4.6.2. Include BWCs other than LOW in the hourly ATIS information. Airfield Management personnel will notify 5 BW/CP, Minot AFB Tower, and aircrews stepping to fly of BWC MODERATE or SEVERE.

4.6.3. The Tower is the primary agency for transmitting BWCs to airborne aircraft or aircraft awaiting takeoff clearance.

4.6.4. Under BWC SEVERE, Minot Tower will issue the advisory, "Minot is bird watch condition severe, birds on/near the runway (as appropriate)" IAW FAA Handbook 7110.65.

4.7. Aircrew Responsibilities and Procedures: Aircrews that observe or encounter any bird activity while in flight which constitutes a hazard will contact the Tower, SOF, or 5 BW/CP

for relay to SOF or Airfield Management as appropriate. The following information will be included:

4.7.1. Call Sign.

4.7.2. Location.

4.7.3. Altitude.

4.7.4. Time of Sighting.

4.7.5. Type of bird (if known).

4.7.6. Approximate number of birds.

4.7.7. Behavior of birds (soaring, migrating, loafing on runway, etc.).

4.8. Procedure for maintenance personnel, Tower, and 5 BW/CP. If a bird activity report is received, notify the SOF (or Airfield Management if the SOF is not on the airfield).

5. 91 MW Flying Operations.

5.1. General. This section outlines rules concerning all 91 MW aircraft. It is applicable to the unique flight regimes and capabilities of helicopters. **Note:** 5 BW operators please refer to Section 4 of this publication for guidance.

5.2. Authority. Tower will notify 54 HS/SOF via Helicopter Ops Desk when bird conditions change during helicopter flight operations. Implementation of helicopter operational restrictions due to hazardous bird conditions will be made by the Commander, DO, or 54 HS/SOF as the situation dictates. Aircrews in flight will be informed of the current bird condition and will adhere to the following guidance. However, this document does not substitute pilot judgment, as situations may warrant more immediate action to safely recover both crew and aircraft.

5.3. Guidance. The 54 HS/DO or his designated representative or higher will apply operational restrictions to local flying operations that are tailored to observed bird activities. In many situations informing aircrews that increased bird activity exists will be sufficient action. However, some situations will require more positive actions to reduce the potential for a bird strike. Although restrictions will vary with the type and location of bird activity, the following minimum restrictions should be complied with:

5.3.1. Condition SEVERE:

5.3.1.1. Traffic Pattern. Helicopter flight crews will avoid the vicinity of bird activity and make a full stop landing or depart the traffic pattern. Restricting authority and crews should consider delaying departures and arrivals or diverting aircraft.

5.3.1.2. Low Levels. Specific areas and altitudes should be specified and avoided. (EXAMPLE: Alpha Flight area below 1,000’ – avoid). Choose alternate route if available.

5.3.1.3. Night. Night operations should be suspended. Aircraft in the local pattern should accomplish one landing to a full stop. Aircraft in flight, but not in the local pattern, should be delayed or diverted until the SEVERE condition is downgraded, if practicable.

5.3.2. Condition MODERATE:

5.3.2.1. Traffic Pattern. Helicopter flight crews will avoid the vicinity of bird activity and adjust or minimize traffic patterns to mitigate risk.

5.3.2.2. Low Levels. Fly at altitudes necessary to minimize bird hazards.

5.3.2.3. Night. Helicopter flight crews will use night vision goggles to avoid the vicinity of bird activity and will fly at altitudes and airspeeds to minimize bird hazards.

5.3.3. Operators flying in the uncontrolled environment following airfield closure will not have bird hazard abatement support. Caution will be used to mitigate the risks associated with avian threats.

5.4. Communication. The BWC will be disseminated by any combination of the following means:

5.4.1. BWCs exceeding LOW will be posted at the operations desk.

5.4.2. 54 HS/SOF will brief aircrews during SOF briefing as appropriate.

5.4.3. 54 HS/SOF will inform airborne aircraft via radio.

5.4.4. Airborne aircraft will report hazardous bird activity via radio to the 54 HS/SOF and other airborne aircraft.

5.5. Reporting. The following reporting procedures will be used for reporting hazardous bird activity and actual bird strikes:

5.5.1. Reports of hazardous bird activity will be passed from the 54 HS/SOF to the Tower via the Helicopter Ops Desk.

5.5.2. Helicopter contract maintenance will report observed hazardous bird activity to the 54 HS/SOF.

5.5.3. Aircrews and 54 HS/SOF will report bird strikes in accordance with the Bird Strike Quick Reaction Checklist at the 54 HS/SOF desk.

5.5.4. Maintenance will report previously undetected bird strikes to the 54 HS/SOF.

5.5.5. After duty hours, maintenance will collect non-fleshy bird strike evidence using the collection bags in the aircraft “nav kit” and notify the 54 HS/SOF the next duty day if there is no aircraft damage. Maintenance will report bird strikes resulting in aircraft damage to the 54 HS Commander or DO immediately, and comply with the aforementioned evidence collection procedures.

5.6. Transient Crews. Transient helicopter aircrews flying in support of, or in conjunction with, the 54 HS will comply with the criteria outlined in this publication.

5.7. 91 MW/SEF and 54 HS/SEF BASH Responsibilities. 54 HS/SEF will inform crews of hazardous migratory bird areas and times based upon current BAM models and aircrew inputs. Additionally, he or she will ensure copies of all AF Forms 853 and bird remains are promptly forwarded to 91 MW/SEF for bird strike tracking. 91 MW/SEF will forward the AF Forms 853 and bird remains IAW Annex D. Aircraft damage will be reported IAW AFI 91-204.

ALEXIS MEZYNSKI, Colonel, USAF
Commander, 5th Bomb Wing

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPAM 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques*

AFI 10-206, *Operational Reporting*

AFI 11-202 Vol 3, *General Flight Rules*

AFI 91-202, *The US Air Force Mishap Prevention Program*

AFI 91-204, *Safety Investigations and Reports*

MAFBI 11-250, *Airfield Operations*

AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*

AFI 32-7061, *Environmental Impact Analysis Process*

AFI 32-7064, *Integrated Natural Resources Management*

AFI 64-117, *Air Force Government-wide Purchase Card Program*

AFI 13-204, Vol 3, *Airfield Operations Procedures and Programs*

AFPD 91-2, *Safety Programs*

AFMAN 91-201, *Explosives Safety Standards*

AFI 91-207, *The US Air Force Traffic Safety Program*

AFI 31-207, *Arming and Use of Force by Air Force Personnel*

AFI 32-1053, *Pest Management Program*

AFI 32-7086, *Hazardous Materials Management*

AFM 31-229, *USAF Weapons Handling Manual*

AFM 91-223, *Aviation Safety Investigations and Reports*

50 CFR 21.41, *Migratory Bird Depredation Permits*

51 FR 41206, *Final Rule for Regulatory Programs of the Corps of Engineers*

UFC 3-260-01, *Airfield and Heliport Planning and Design*

http://www.afsc.af.mil/organizations/bash/index.asp

Prescribed Forms

There are no forms prescribed by this publication.

Adopted Forms

AF Form 853, *Air Force Wildlife Strike Report*, 15 Oct 2005

AF IMT 847, *Recommendation for Change of Publication*, 22 Sep 2009

Abbreviations and Acronyms

AF—Air Force

AFB—Air Force Base

AFGSC—Air Force Global Strike Command

AFI—Air Force Instruction

AFM—Air Force Manual

AFPAM—Air Force Pamphlet

AFSC—Air Force Safety Center

AFSPC—Air Force Space Command

AHAS—Avian Hazard Advisory System

AM—Airfield Management

APA—Alert Parking Area

ATC—Air Traffic Control

ATIS—Airport Terminal Information System

BAM—Bird Avoidance Model

BASH—Bird Aircraft Strike Hazard

BHWG—Bird/Wildlife Hazard Working Group

BWC—Bird Watch Condition

CSC—Central Security Control

DO—Director of Operations

DoD—Department of Defense

DOP—Dropped Object Prevention

EAL—Entry Access List

EPA—Environmental Protection Agency

ESA—Endangered Species Act

FAA—Federal Aviation Administration

FCC—Federal Communications Commission

FLIP—Flight Information Publication

FOD—Foreign Object Debris

HA—Hectares

HQ—Headquarters

IAW—In Accordance With

LMR—Land Mobile Radio

MAD—Minot Air Force Base Depredation

MAFBI—Minot Air Force Base Instruction

MAJCOM—Major Command

MOC—Maintenance Operations Center

MPA—Main Parking Area

NEXRAD—Next Generation Weather Radar

NLT—No Later Than

OPA—Overflow Parking Area

OPR—Office of Primary Responsibility

PPE—Personal Protective Equipment

QRC—Quick Reaction Checklist

RC—Remote Control(led)

SAS—Safety Automated System

SOF—Supervisor of Flying

TDY—Temporary Duty

UFC—Unified Facilities Criteria

USFWS—US Fish and Wildlife Service

USSTRATCOM—US Strategic Command

VBO—Virtual Base Operations

WSA—Weapons Storage Area

Attachment 2

MAPS AND CHARTS

A2.1. General. This attachment outlines the requirements for the maps and charts required to implement the BASH program. These requirements address the following maps and charts:

A2.1.1. Base habitat map.

A2.1.2. Surrounding area map.

A2.1.3. Low-level route/training area range maps.

A2.2. Minot AFB Habitat Map: (OPR: MAFB Wildlife Biologist)

A2.2.1. Conduct a survey, as required, to identify major habitat types available to birds. Construct a map based on this survey.

A2.2.2. When a specific hazard is identified and the location of the activity is isolated, use the habitat map to determine if a specific attractant exists which can be altered within the scope of

this plan.

A2.2.3. Use the map for long-range civil engineering programs to reduce actual and potential hazardous environmental factors on Minot AFB.

A2.2.4. Provide copies to 5 BW/SEF, 91 MW/SEF, Airfield Management, 23/69 BS/SEF, and 54 HS/SEF upon request.

A2.3. Minot AFB Surrounding Area Map: (OPR: 5 CES/CEPT)

A2.3.1. Construct a map of the surrounding area using the Habitat Map guidance listed above.

A2.3.2. Use this map to identify specific hazards such as wildlife refuges, wetlands, lakes, landfills, etc., to avoid over flight. Modify hazards through negotiation with the local community when possible.

A2.3.3. Provide copies to 5 BW/SEF, 91 MW/SEF, Airfield Management, 23/69 BS/SEF, and 54 HS/SEF upon request.

A2.4. Low-Level Route/Training Area/Range Maps: (OPR: 5 OSS/A-2T) Maintain maps depicting all low-level routes/ranges/areas used by 5 BW aircraft. Annotate wildlife refuges on the charts.

A2.5. Low-Level Route/Training Area/Range BASH Charts: (OPR: 23 BS/FSO)

A2.5.1. The USAF Bird Avoidance Model (BAM) is available on the web at

http://www.usahas.com/bam/. Low-level routes, along with military and civilian airfield data, will be available by request.

A2.5.2. The Avian Hazard Advisory System (AHAS) provides bird strike risk information from observations made by the NEXRAD weather radar system. Weather radar data is processed by the AHAS system to detect birds in "near" real time. This information is on the web at **http://www.usahas.com**/.

A2.5.3. Use data to recommend changes in the use of routes/areas during periods of peak bird activity.

A2.5.4. 23/69 BS/FSO and the Flight Commander of the Day will insure current BASH charts are included and updated on the Virtual Base Operations briefing (located at the 23rd/69th Bomb Squadron Step Desk).

Attachment 3

MAD TEAM FIRE ZONE RESTRICTIONS

Figure A.3.1. MAD Team Fire Zone Restrictions