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Wildlife Services

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Wildlife Services Program Safety Review

Evaluation of Current Safety Program and Identification of Safety Improvements

Prepared for Wildlife Services by:

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WS Program Area	Reviewing Organization	WS Safety Review Team
Aviation	Interagency Committee on Aviation Safety	Jacob Wimmer
Explosives and Pyrotechnics	The Institute of Makers of Explosives	Alton Dunaway
Firearms	National Security Academy	Mark Jensen
Hazardous Materials	Federal Occupational Health Century Environmental *	Steve Greiner
Immobilization and Euthanasia Drugs	The Berryman Institute Global Wildlife Resources **	Judy Loven
Pesticides	Federal Occupational Health EnviroHygiene, LLC *	Jeffery Jones
Vehicles	Federal Occupational Health Tidewater Inc. *	Steve Greiner
Watercraft	Maryland Department of Natural Resources Police	Kevin Sullivan
Zoonotic Diseases	The Berryman Institute	Robert Beach

* Century Environmental Health, EnviroHygiene, LLC and Tidewater, Inc. were subcontracted through Federal Occupational Health.

** Global Wildlife Resources was subcontracted through the Berryman Institute.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Through a cooperative effort of the APHIS Administrator's and Wildlife Services Deputy Administrator's offices a programmatic safety review of APHIS Wildlife Services (WS) was conducted during 2007-2008. Although program area specific safety reviews have been conducted previously, a comprehensive review was deemed appropriate after accidents in 2006 and 2007. Its focus was to evaluate the current safety program and identify improvements that can be made in WS activities to improve employee safety.

Nine WS operations program areas that present potential safety risks are included in this review: aviation, explosives and pyrotechnics, firearms, hazardous materials (chemical and biological), immobilization and euthanasia drugs, pesticides, vehicles, watercraft, and zoonotic diseases (diseases & parasites transmissible from wildlife to humans). Each program area was reviewed by subject-area experts from outside of APHIS.

For each program area, reviewers evaluated and reported on adequacy of written safety materials, effectiveness of safety program administration, training course materials, tracking systems for employee training and recertification requirements, and the program's safety culture. Accident records were reviewed and field inspections were conducted.

Reviewers stressed that some WS program areas have extremely well-designed safety programs in place that could serve as models for other agencies to follow. The well-managed aviation program was cited for an excellent training facility and high standards for pilot and crew certification. Within the explosives program area, long-standing outreach efforts to explosives industry experts have contributed to a well-developed safety program. Vehicle operators have a demonstrated low accident rate, and firearms users have a very low frequency-of-use/accident-rate ratio.

The reviewers suggested some safety improvements for multiple program areas, such as, the need for standardized training programs, and databases to track training and certification, drugs, and other hazardous materials. Other suggestions were more narrowly focused on specific program areas. Improvements specified include the need to: select a National Aviation Coordinator for the WS aviation program to ensure regulatory FAA compliance, which would require an aviator certified in at least one program aircraft; improve roadside safety for vehicle operators and communication ability for remote employees; stress the importance of employees partnering with co-workers when working with explosives; ensure local veterinary support when working with immobilization and euthanasia drugs; and maintain personal protection equipment and improve accident investigation procedures.

Overall, reviewers indicated that WS employees are cognizant of the often hazardous nature of their work and their responsibility to perform their duties safely. Implementation of a more formal and accountable nation-wide safety system and dedicated safety funding are highlighted as important ingredients in ensuring a safer environment for employees, stakeholders, and the public.

1. INTRODUCTION

The Wildlife Services (WS) program is unique among APHIS programs, in that a high percentage of some employees' daily duties involve hazardous procedures and materials. To complete the Program's mission, employees use motorized land vehicles (ATVs, snowmobiles, trucks and automobiles), watercraft, aircraft, hazardous chemicals (laboratory, manufacturing), pesticides, immobilization and euthanasia drugs, explosives (including pyrotechnics), animal handling, and firearms. Recognizing the risk involved in these operations, WS has in place extensive safety policies and procedures to ensure the safety of WS employees. Accidents during the last five years involving aircraft, firearms, pyrotechnics, and water safety highlighted the need for WS to reassess safety policy and procedures to ensure the work environment is as safe as possible for WS employees.

This safety review was not designed to assess the appropriateness or effectiveness of WS mission activities. It was designed and conducted for one purpose: to ensure WS is doing everything that can be reasonably expected, to provide the safest working environment for its employees.

2. PURPOSE AND ORGANIZATION OF THE REVIEW

Aviation, firearms, pyrotechnics and water safety accidents in 2006 and 2007 highlight the need for WS to take a critical look at its safety policy and procedures. In June 2007, working cooperatively with the APHIS Administrator's office, the WS Deputy Administrator began a comprehensive review of nine WS programmatic areas that present a significant safety risk.

Nine major program areas of the WS program were included in this safety review: aviation, explosives and pyrotechnics, firearms, hazardous materials (chemical and biological), immobilization and euthanasia drugs, pesticides, vehicles, watercraft, and wildlife diseases/parasites (zoonotic disease). To facilitate the program-wide review process, one WS employee was identified as the facilitator and primary contact for each area. The facilitator was responsible for assuming the lead role in the initial design of his or her component review, securing contracts or cooperative agreements with the reviewing organization, and ensuring the final report was complete with findings and recommendations. Since this was a voluntary review, no punitive actions were associated with the review process. This approach allowed all WS programs and employees freedom to be transparent and open when contacted by reviewers.

The actual program area reviews were conducted by independent subject-area experts to ensure objectivity. It was also determined that organizations familiar with the WS mission would increase the quality of the review, however, this was not a critical condition of contractor selection. Subject area experts selected to conduct the reviews included the following organizations:

- The Interagency Committee for Aviation Policy (ICAP) – The ICAP is recognized as leaders in government aviation safety programs. The ICAP conducts standardized reviews according to ICAP's "Guide for the Conduct of Aviation Resource Management Surveys." Through ICAP, the General Services Administration and other federal agencies work together to foster the safest, most efficient and effective federal aviation operations. ICAP reviewed the WS aviation program.
- The Institute of Makers of Explosives (IME) - The IME is a non-profit incorporated association founded in 1913 to provide accurate information and comprehensive recommendations concerning commercial explosives. The IME is the safety association for the commercial explosives industry in the United States and Canada. IME reviewed WS' use of explosives and pyrotechnics.
- The National Security Academy (NSA) – The NSA is a private firearms use and safety training organization. The NSA, staffed with prior law enforcement and military professionals, specializes in providing training to law enforcement, military, mobile security teams, and security consultants. NSA reviewed WS' use of firearms.
- Federal Occupational Health (FOH) – FOH is one of the primary government agencies tasked with assessing workplace safety. Through FOH, reviews were contracted for WS use of hazardous materials, vehicles and pesticides.
    - Hazardous Materials – Century Environmental Health specializes in industrial hygiene, toxicology and risk assessment.
    - Pesticides – EnviroHygiene, LCC is involved in all aspects of integrated environmental safety auditing, training, and consulting, including pesticide use and safety.
    - Vehicles – Tidewater Inc. is involved in all aspects of industrial hygiene, environmental engineering, and occupational safety and health. Among work in management and safety of vehicle fleets, Tidewater manages the Job Corps safety program.
- The Berryman Institute – The Berryman Institute is the premiere non-governmental organization dedicated to professionalism in resolving human-wildlife relationships and resolving human-wildlife conflicts through teaching, research, and extension. Located within the Mississippi State University and Utah State University, it was the lead agency on the review of the WS zoonotic disease review. (It is noted that the Berryman Institute receives financial support from WS but is independent and co-directed by university faculty.)
- Global Wildlife Resources (GWR) – GWR, a nonprofit agency, supports wildlife professionals and universities with field assistance, training and educational resources. It provides euthanasia and immobilizing training to many wildlife management professional organizations including WS. The course offerings including "Wildlife Handling and Chemical Immobilization for Wildlife Professionals," are considered the best in the industry. GWR conducted the immobilization and euthanasia drug review in conjunction with The Berryman Institute.

- The Maryland Natural Resources Police (NRP) - The NRP, a state law enforcement agency, is a member of the National Association of State Boating Law Administrators (NASBLA) and provides training to all Maryland residents operating boats in Maryland waters and to Maryland WS boat operators. The Maryland NRP boating safety program is considered one of the best in the United States.

Reviewers were asked to evaluate the WS safety program areas in the following ways:

- Review applicable APHIS and WS Directives in relation to safety policies. Identify weaknesses and make recommendations as appropriate.
- Evaluate safety program administration. This includes staffing, staff responsibility and accountability, line authority for compliance and intra-program hazard communication and dissemination of safety information, manuals and standard operation procedures. Conduct telephone or field interviews with State Directors, District Supervisors, specialists, biologists or other employees.
- Evaluate relevant training-program course materials, and the tracking system for employee training and recertification requirements. Identify weaknesses and make recommendations. If applicable, observe at least one training workshop.
- Conduct on-site field inspections at a minimum of two Western Region and two Eastern Region locations, unless otherwise specified. The overall WS program review was coordinated to maximize the number of research and state operational program locations receiving at least one component safety inspection. Field inspections were to examine the availability of relevant safety information and equipment, employee knowledge of and adherence to safety policies, use of personal protective equipment, on-site hazard communication rules, transportation, handling and storage of hazardous materials, and equipment condition. Reviews included State office, headquarters and field-level observations and interviews.
- Review WS accidents that occurred between 2002 and 2007 (five years). This review will focus on identifying causes and provide recommendations to prevent reoccurrences.
- Evaluate the entire WS program culture regarding fostering and promoting safe working environments.
- Produce a written final report of the review and conduct an exit interview including recommendations for program improvement and establishing systems to monitor safety compliance. The final report should summarize all findings and observations into firm recommendations aimed at improving overall program safety.

Unless reviewers noted specific conditions during site visits that warranted immediate or specific attention, recommendations were targeted at programmatic improvement. Any safety conditions warranting immediate attention were to be brought up at the time of observation allowing corrective action to be taken immediately.

3. INDIVIDUAL REVIEW SUMMARIES

Results of the program area reviews are presented below by breaking the review into four sections. The first section provides a short narrative describing the efforts made by WS to protect its employees prior to the conducting this safety review. The second section describes the activities the reviewer undertook during the review. The information provided in the third section "Summary of Review Findings" has been excerpted from the actual reviews and includes either the executive summary or another section of the report which provided an overall synopsis of the review. *The text in this section has only been changed to make editorial corrections or remove repetitive text.* The fourth section provides a short list of the priority improvements recommended by the reviewers. These recommendations should be viewed as those having the biggest impact on improving employee safety. A complete list of all recommendations made by the reviewers is provided in the Appendix II, following each individual review report.

3.1 Aviation

Safety Initiatives in Place Prior to Review
The current Aviation Operations and Safety program began with the Aviation Safety and Operations Review of 1998, initiated because of a series of aircraft accidents, some with fatalities, in WS aerial operations. That review provided recommendations, and suggested resources for improving the WS Aviation Program. When this current safety review began in June 2007, the products and programs based on the 1998 review in place were as follows:

- Appointment of a Flight Instructor Training Officer (FITO) in 1999 to develop and implement aviation training and standardization program. This position provided the standards and training curriculum to which agency pilots and contract pilots must perform.
- Establishment and hiring of the following positions to enhance safety and operations:
    - Aviation Safety Manager
    - Aviation Maintenance Officer
    - Helicopter Specialist
- Appointment of a National Aviation Manager (NAM) to implement agency operating and safety programs and policy (2002).
- Aviation Training and Operations Center (ATOC) opened in Cedar City, UT, (2004) to further WS aviation standards and safety.
- Aviation Operations Manual and Aviation Safety Manual revised, published, and implemented (2004) to provide guidance and direction for aviation operations.
- Aviation accident investigation practices and procedures implemented to find causes of accidents, and how to prevent the incident/accident from reoccurring (2006).
- Appointment of a National Aviation Coordinator (NAC) (2007).

The WS Aviation Program has been growing and evolving since the earlier mentioned 1998 review. The WS Aviation Training and Operations Center has become the low-level aviation authority in the U.S., by providing high quality training, standardization, and most of all, guidance for safe job performance. The Aviation Program's goal is to provide WS employees the ability to do their assigned tasks safely with the best equipment available.

Review Activities
Review of the WS aviation program was conducted by the Interagency Committee on Aviation Policy (ICAP). The ICAP review team included representatives of the Federal Aviation Authority (FAA) and the General Services Administration (GSA), Aviation Management Program. During the review, ICAP representatives examined all WS Directives, documents and manuals relating to management and operations, training requirements and curricula and training records, maintenance records procedures, and aviation safety procedures. The ICAP team also interviewed

representatives of WS management, pilots, administrative personnel, maintenance personnel and contractors. As part of the review the ICAP team spent four days at the WS ATOC, and conducted an on-site inspection of one aircraft maintenance facility.

Summary of Review Findings

The U.S. Department of Agriculture, Animal and Plant Heath Inspections Service, Wildlife Services program operates in accordance with applicable Federal Aviation Regulations (FAR Part 91, Part 43, etc.), Public Law, and the Code of Federal Management Regulations (FMR 102-33) that pertain to a federal agency aviation operation. There are WS program manuals, policies, and procedures in place designed to effectively manage the organization. It is the opinion of the Aviation Resource Management Survey (ARMS) Team that the WS aviation program is being operated in a safe, efficient, and effective manner. The WS aviation program meets the requirements of the ICAP Gold Standard Certificate program.

The WS aviation program provides capable, mission-ready aircraft and professional crews trained to conduct the WS mission wherever and whenever required. Some of the aviation missions the WS carries out include population reduction, bird and mammal surveys, delivery of oral rabies vaccines, predator control, and training. Wildlife Services conducts these missions by using helicopters and fixed-wing aircraft. Wildlife Services operates in 28 states using 74 agency-owned, contactor-owned and -operated, and "exclusive use" leasing aircraft. The WS flight crews are required to conduct missions that include demanding flight regimes. The central WS training facility is located in Cedar City, Utah, and this center supports WS operations in each state.

The following is a general summary of the WS aviations operations that the ARMS Team evaluated during the survey.

Management and Administration

It is the opinion of the ARMS team that WS has an appropriately defined organizational structure in place that is staffed with trained, qualified and experienced personnel. It is clear that WS has put significant effort into establishing an aviation management structure that conforms to the requirements contained in FMR 102-33.

During the course of the evaluation, ARMS members interviewed numerous management, support, and administrative personnel. The interviews regarding management were positive. Overall morale of the staff seems good.

The system seems to be working well for WS. Managers felt they had appropriate input into the planning and budget process. All felt their program needs were being met. All managers and supervisors with budget responsibility were especially happy with their autonomy in dealing with their budgets, programs and challenges. A high degree of team effort was noted between the various program managers in dealing

with budget issues and needs. Wildlife Services appears to be proactive in its fleet planning with an active and recurring effort to review and evaluate its mission and program. Overall, indications are that management enjoys the confidence and support of the employees.

Training

Wildlife Services has an established flight training program. The majority of the initial and recurrent training is conducted at the Aviation Training and Operations Center (ATOC) located in Cedar City, Utah. The training facility is staffed with a minimum of qualified personnel to accomplish the training mission. The ATOC manager has developed an effective training curriculum using a set of manuals, simulators and training devises that provide outstanding quality training that is geared to the specific tasks of the WS pilot and crewmember. The training promotes safety through standardization. Training records are maintained at the ATOC facility both hard copy and electronically. A review of the records indicates that they are well maintained, accurate and complete. All personnel interviewed indicated that the training has improved dramatically over the past few years and gave it high marks for effectiveness, timeliness, and applicability. The training operation is considered to be outstanding.

Safety Management Administration

The WS aviation safety program is detailed in the WS Aviation Safety Manual. The WS Aviation Safety Officer (ASO) manages the aviation safety program. The aviation safety program meets all requirements of the Federal Management Regulation (FMR) 102-33 180 thru .185.as well as FMR 102-33.445 and .450. It is operating in an effective manner with all required elements required of a successful aviation safety program.

Operating Procedures, Manuals, and Directives

The WS Aircraft Operations Manual (2004) is used by all aviation and management personnel to conduct flight operations. The manual is currently under revision and requires only minor changes to bring it up to standards required by the Federal Management Regulation, Federal Aviation Regulations, and WS Directives. Wildlife Services State Directors also issue state directives to augment the Aircraft Operations Manual.

Operations Records

The pilots training and certification records are being maintained in several locations within WS. From interviews and discussions, the records appear to be maintained in accordance with the FMR and Federal Aviation Regulations (FAR). Flight time records being maintained appear to be accurate and complete.

Flight Operations

The WS flight operations are highly decentralized and located in rural areas close to the locations in which they conduct their flight operations. This wide dispersal of flight operations was not conducive to practical observations by the ARMS teams.

However, one ARMS team member was able to observe the flight operations of a contract operator in Oral Rabies Vaccination operations being conducted in Junction, Texas, on January 17, 2008. Interviews and reviews of manuals and WS directives lead the ARMS team to a good understanding of how flight operations are being conducted.

Maintenance Management

Wildlife Services aircraft maintenance management is addressed in the WS Aviation Operations Manual in a disjointed manner. There is no designated chapter in the Aviation Operations Manual that addresses maintenance procedures and no 'stand alone' General Maintenance Manual. However, all WS aircraft are required to have "a valid FAA Airworthiness Certificate" in accordance with the Aviation Operations Manual, Section B. It is assumed that every WS aircraft falls under a manufacturer's maintenance program, which includes FAA oversight. The ARMS Team reviewed the WS existing maintenance procedures and documents, applicable Title 14 Code of Federal Regulations (CFR), Federal Aviation Regulations (FAR), FAA Type Certificate Data Sheets (TCDS), and FAA Advisory Circular (AC) 00.1-1 Public Aircraft Operations, for the basis of determining the effectiveness and regulatory compliance of WS maintenance management. The survey included personal interviews with key WS maintenance personnel and contractors. It is the opinion of the ARMS Team that the aviation maintenance program is operating in a safe manner.

Wildlife Services requires all WS aircraft to be certified, maintained, and operated in accordance with all pertinent regulations and guidelines set forth by Aircraft Operations Center (AOC), International Civil Aviation Organization (ICAO), DOD, FAA, and Aircraft Manufacturers to the fullest extent practical. FAR Part 91 has been established as the minimum standard for maintenance and inspection of WS aircraft.

It appears that there is limited communication between the State Director, National Aviation Coordinator and field personnel on the airworthiness status of aircraft operated by the Program. It is also difficult to determine who has the oversight responsible for tracking aircraft times and scheduled inspections.

Refueling Facilities and Operations

The WS normally conducts in-house refueling services. There are procedures in the Aircraft Operations Manual under Section B-Flight Operations, B-9, Aircraft Refueling Procedures. Overall, aircraft refueling appears to be conducted in a safe manner with sufficient procedures in place as outlined in the operations manual.

Aviation Life Support Equipment (ALSE)

There is no formal WS "ALSE Program" in place. However, ALSE is worn by each WS pilot. Each pilot wears as a minimum, a helmet, nomex flight suit, nomex gloves, and leather boots. In addition, each aircraft carries an Emergency Locator Transmitter (ELT) and a survival kit. The ALSE equipment is stored in a central

location, distributed by APHIS personnel, and inspected on an annual basis as per the Aviation Operations Manual Section B-15.3.3. Any equipment that requires repair or replacement is done so at that time.

Physical Security

Wildlife Services addresses physical security in Directive 1650.2 (2/28/06) the APHIS Aviation Security Program. This directive directs WS personnel to conduct risk analysis for each mission as well as security procedures for aircraft, personnel, and facilities. The security program is a function of the Marketing and Regulatory Business Services, Employee Services Division (ESD), which conducts security reviews and issues security policy. The Directive states that the ESD Director is responsible for the functional management and leadership of the APHIS Aviation Security Program and the APHIS Aviation Security Officer is responsible for APHIS employees, aircraft, and facilities. The ATOC facility in Cedar City is equipped with video monitors, and key control, and the personnel are briefed and trained in USDA security requirements. Overall, the USDA security program is operating in an effective manner and is in compliance with FMR 102-33.

Aviation Accident Response Plan

Wildlife Services has aviation accident response plans for each State program and the USDA has an aviation accident response plan that appears to meet the requirements of the Emergency Response Plan that follows the procedures as suggested by the National Transportation Safety Board in the NTSB Federal Plan for Aviation Accidents Involving Aircraft Operated by or Charted by Federal Agencies (NTSB Plan).

The top priority recommendations made by the ICAP were as follows:

1. Management and Administration
    - The NAC, out of necessity, should be a qualified aviator. It may not be necessary, although highly desirable, that they have a background as an APHIS pilot, but they should definitely have aviation experience. It only stands to reason that an individual that is in a position to create and influence aviation policy have aviation experience. In the civilian world, this position would equate to a Director of Operations for an air carrier or air taxi operator. Federal Aviation Regulations (14 CFR Part 119) require that an individual in that position be a current line pilot in at least one aircraft that the operator operates. The position of NAC at USDA/APHIS/WS WS should be filled by a qualified aviator. This will give instant credibility to the position and to the safety and training programs.
2. Training
    - The ATOC has developed an outstanding training program that enhances safety in APHIS flight operations. Upper management should continue to support the training program with necessary financial and human resources that might be required for the ATOC to continue providing outstanding and effective training.

- For each course of training the ATOC should add a "Completion Standard." This would bring the training curriculums up to industry standards (14 CFR Part 141). In addition, it gives the student a complete understanding of what level of performance is expected of them at the completion of a module of training.
- The ATOC should develop a policy addressing how unsatisfactory ("U") item(s) on a check flight (pilot evaluation flight) will be processed. By establishing quantitative completion standards (see Recommendation 1 above) there is no question as to whether a pilot was successful or not. Also, remedial training and how many attempts to satisfactorily complete a maneuver should be addressed. The process should be included in the Aviation Operations Handbook which will become policy as it is signed by the Deputy Administrator. This policy would be a great benefit to human relations personnel should it become necessary to take action affecting an employee's employment status as the reason for the action is quantified and is no longer subjective. This is a standard policy in the air carrier industry.
- Wildlife Services should consider to hiring another full time Certified Flight Instructor (CFI) to the Cedar City training facility staff. This would alleviate scheduling and resource problems/issues created when the ATOC goes to a State Director to secure the services of one of his/her pilots who provide CFI services. An additional CFI would provide more timely checking (evaluating pilots during a flight) and enhance standardization and thus safety.

3. Aviation Life Support Equipment (ALSE)
   - APHIS should formalize the ALSE Program and designate an "ALSE Manager" who would be responsible for the ordering, tracking, distribution, inspection, and repair (or return to manufacturer) of ALSE equipment. This "ALSE Manager" would also be responsible for the evaluation of ALSE equipment and for developing policy for the use of ALSE equipment by APHIS/WS flight crew and personnel.
4. Operating Procedures, Manuals, & Directives / Maintenance Management
   - The Aircraft Operations Manual needs to be updated to incorporate changes contained in the WS Directive as well as other procedural changes that have been implemented and are being practiced by managers and pilots. This will bring it up to standards required by the FMR, FAR, and WS Directive.
   - Wildlife Services should revise Aviation Operations Manual Sections B, C, & J to reflect current guidelines/policy of WS operations
5. Management & Administration
   - APHIS should develop a planning document that outlines a budget and timetable for the purchase/replacement of aircraft. The plan should consider the cost of operating older aircraft versus newer aircraft as well as determine the appropriateness of a particular aircraft type for the terrain that it is to operate in. Aircraft that are identified as 'scheduled for replacement' should be considered as candidates for the General Services

Administration's ‘exchange/sale’ program. Older aircraft could be sold and the monies received could be used to purchase newer aircraft for the APHIS fleet.

Safety Review Coordinator comment: Shortly before this document went to the printer, the ICAP review team leader submitted the following recommendation via email.

In the safety review draft final report, it is stated that "WS should accept no less than industry standard" and WS should "...implement programs designed to make safety a common mindset and goal of all employees." The adoption of a Safety Management System (SMS) would go a long way in accomplishing those goals. The FAA is in the process of redesigning the National Airspace System (NAS). The program is referred to as "NexGen". Congress directed the Secretary of Transportation to establish a Joint Planning & Development Office (JPDO) in the FAA to manage work related to the Next Generation Air Transportation System (ATS). The JPDO has nine working groups -- Aircraft; Air Navigation Services; Airport; Environment; Global Harmonization; Safety; Security; Net-Centric Operations; and Weather. Government and industry representatives jointly co-chair each of the nine working groups. The Safety Working Group is emphasizing Safer Practices as an integrated, systemic approach to safety risk management through implementation of formalized Safety Management Systems (SMS) that incorporate safety data analysis processes. An SMS provides a systematic and deliberate approach to safety management in four key areas identified as safety policy, Safety Risk Management (SRM), safety assurance, and safety promotion. Safety management systems establish safety accountability at all organizational levels by using management principles, practices, and procedures geared towards the identification and control of risk and the promotion of a strong safety culture.

The FAA considers this an integral part of the NexGen ATS. They will first direct the certificated air carriers to adopt and implement the SMS approach. The FAA has already approached ICAP with the intent that ICAP play a pivotal role in the incorporation of SMS into the government aviation flight.

3.2 Explosives and Pyrotechnics

Safety Initiatives in Place Prior to Review

WS is recognized by commercial explosives industry officials at The Institute of Makers of Explosives (IME) as the leader in explosives safety and accountability for wildlife management applications. WS' explosives safety training and certification program is recognized by the IME as "the premier explosives program of its type in the United States."

In 1986, WS recognized the need for an effective explosives safety program. In cooperation with the commercial explosives industry, WS developed policy and procedural guidance for field operations and established an in-depth explosives safety training program. Two private explosives engineering consultants were recruited to assist the newly formed WS Explosives Safety Committee with developing a nationwide explosives safety and regulatory compliance program.

The WS explosives safety program features the following elements for explosives applications in wildlife damage management.

- Voluntary use of commercial explosives industry safety standards and Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) regulations. Occupational Safety and Health Administration (OSHA) and U.S. Department of Transportation regulations and standards are also observed.
- Safety procedure field checklists similar to an airplane pilot's checklist
- A proactive Explosives Safety Committee established to do the following:
  - train and certify WS Explosives Specialists,
  - promote and represent the interests of WS and APHIS cooperators to the commercial explosives industry and Federal regulatory agencies,
  - ensure safe and legal storage, transportation, and handling of explosives by WS personnel,
  - assist WS state programs implementation of explosives security measures and state-of-the-art explosives industry safety measures,
  - provide assistance to other agencies with jurisdiction or interests in explosives including ATF, OSHA, Consumer Product Safety Commission, U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Forest Service, state wildlife and regulatory agencies, and Foreign governments, and
  - serve as an information source for WS Certified Explosives Specialists, the WS Management Team, other federal and state agencies, university wildlife departments, private wildlife management organizations, and other wildlife managers.
- A history and willingness to respond positively to explosives and other hazardous materials reviews and audits. The WS explosives program underwent an OIG/OSHA audit in 1994-96 which resulted in a number of recommendations. WS actively participated in and assisted OIG and OSHA in every way possible during the review, and implemented many

of the recommendations prior to the final audit report. All audit recommendations were implemented and remain in effect today.

- Training developed by WS in 2005 to teach rocket and cannon capture net safety for avian influenza sample collections has been under taken by 146 biologists and wildlife technicians to date from WS and cooperating Federal and state agencies, universities, and private conservation organizations. Wildlife Services also developed a capture net operated by air pressure which is in use for AI surveillance.

Review Activities

Review of the WS explosives and pyrotechnics program was conducted by The Institute of Makers of Explosives (IME). The IME is recognized in the U.S. as the premiere organization dedicated to promoting safe use of explosives. During the review, IME representatives examined all pertinent WS documents and manuals pertaining to management and operations, training requirements and curricula and training records, explosives and pyrotechnics safety procedures, and interviewed WS management and field personnel. As part of the review the IME team visited five WS state offices and accompanied field personnel on projects including dynamiting beaver dams and using pyrotechnics to haze wildlife.

Summary of Review Findings

The Institute of Makers of Explosives (IME) conducted a safety and security review of WS use of explosives and pyrotechnics. Wildlife Services has an outstanding explosives and pyrotechnics safety and security program and fosters a culture, from top to bottom, that promotes safety. The WS explosives and pyrotechnics safety and security program could serve as a model for other agencies or groups looking to improve their own program." The recommendations made by IME in this report address relatively minor safety and security issues. They should in no way reflect poorly on WS employees. Only through IME's intimate knowledge and experience of commercial explosives and blasting could these recommendations be known.

The IME reviewed six WS Directives and 36 documents used for safety and security training by WS. In general, WS documentation was well written and covered the essential topics. IME suggested many minor modifications to the documentation that WS should consider making.

No training classes were held during the review period so IME was not able to attend one. Wildlife Services training instructors are highly skilled and experienced safety professionals and WS training documents are outstanding. IME has no doubts that the WS training and certification programs could serve as a model for other agencies.

IME conducted four separate field audits of state WS explosives programs, involving six field offices. Each auditor prepared a field-audit report that was reviewed by IME. Each auditor was very impressed with the emphasis WS places on safety and in particular, explosives safety and security. Field audits included a

review of the availability of relevant safety information and equipment, employee knowledge of and adherence to safety policies, use of personal protective equipment, on-site hazard communication rules, transportation, handling and storage of hazardous materials, and equipment condition. No major deficiencies were observed in any of these areas, although IME made recommendations to resolve some minor issues.

Priority Recommendations

The top priority recommendations made by the IME were as follows:

1. Implement ways to limit WS employees working alone with explosives and water hazards related to beaver impoundments.

2. Improve cooperator assistance with safety.

3. Involve the WS Explosives Committee in the review of all accidents involving explosives or pyrotechnics.

4. Ensure that at least ½ FTE be devoted to the national coordination of the WS explosives and pyrotechnics safety and security program.

5. Carry-over the certification process for blasters to the rocket net program.

3.3 Firearms

Safety Initiatives in Place Prior to Review
Wildlife Services has a long tradition in firearms use and firearms safety. It should be noted that WS wildlife damage management activities are distinctly different from recreational sport hunting. Wildlife Services employees frequently conduct wildlife management operations under difficult or unusual conditions in both rural and urban settings, sometimes in high profile situations. Wildlife Services policy and firearms safety training need to reflect this unique role.

In 1999, after an accidental discharge of a firearm inside a vehicle, WS recognized the need to formalize a WS firearms safety policy and proficiency training program. The WS Firearms Safety Committee was tasked with updating the WS firearms safety policy and writing the first WS Firearms Safety Training Manual. In 2002, the WS Firearms Safety Training Manual was provided to WS employees. This training manual reflects the unique mission of WS employees. The manual includes these sections:

- Basic safety training requirements
- WS Directive 2.615, Firearms Use and Safety
- Firearms Safety, APHIS Safety and Health Manual
- General firearms safety considerations
- Firearms carrying positions
- Safety distance guidelines
- Shot-travel distance table
- Lead contamination
- Rifle, shotgun, handgun description
- Rifle, shotgun, handgun marksmanship
- Firearms care
- Reloading safety and ammunition
- Pyrotechnics
- Suppressed firearms, night-vision equipment, and infrared aiming lights
- Shooting range rules
- Sharp-shooting procedures\guidelines for white-tailed deer damage management
- President Clinton's memorandum on child safety lock devices for handguns
- The Lautenberg Domestic Confiscation Law
- Contacts for firearms instructor training

To implement the training required by WS Directive 2.165, WS Firearm Use and Safety, volunteer WS employees were trained and certified as Firearms Safety Training Instructors. Currently WS has 86 certified Firearms Safety Training Instructors throughout the U.S. providing firearms safety training to the over 1,700 WS employees. All WS employees who use firearms in the field have received firearms safety training from a certified firearms safety instructor in accordance

with WS policy and the WS Firearms Safety Training Manual. Employees receive training on all types of firearms (rifle, shotgun, and handgun) at least once every other year. Written tests and live-fire exercises are included in the training.

Each year, WS employees fire tens of thousands of rounds while conducting wildlife damage management activities. Other than the military, this is more than any other state or federal organization, including law enforcement agencies. Although WS strives for zero accidents, the two injury accidents involving WS employees over the past five years is a remarkably low number, when compared to the number of rounds fired and the large number of WS employees who use firearms.

Review Activities

Review of the WS firearms program was conducted by the National Security Academy (NSA). The NSA is a private firearms use and safety training organization. They specialize in providing training to law enforcement, military, mobile security teams, and security consultants. During the review, NSA representatives examined all WS Directives, documents and manuals pertaining to management and operations of WS firearms program, training requirements and curricula and training records, firearms safety procedures. In addition, NSA representatives interviewed WS management and field personnel. As part of the review the NSA team inspected four WS state offices and accompanied field personnel on projects involving live-fire of firearms. They also attended one WS firearms safety training.

Summary of Review Findings

Wildlife managers use many tools to minimize conflict between people and wildlife. Firearms are commonly used when it is determined that removal is the best solution to a conflict. Wildlife Services employees rely on firearms and shoot thousands of rounds each year. It is therefore imperative that WS employees be highly skilled in their use of firearms and employ safe practices.

During the initial site visit, reviewers met with the Chairman of the Firearms Safety Committee who stated, “Wildlife Services” goal is to be at the forefront in firearms safety among all government agencies.” Upon completion of the review, it was apparent that WS is an agency with employees that share this same goal; who demonstrate a willingness to learn and who have a genuine desire to act in a safe and responsible manner. Demonstrating the importance of safe firearms use (through actions and attitude) at each of the various levels within WS will help to ensure that this goal continues to be met.

Wildlife Services has implemented a comprehensive firearm safety program for its employees, resulting in well-trained, competent staff, employees who are knowledgeable about the safe-use, transport, and storage of firearms. When compared to employees of other federal and law enforcement agencies, WS field employees discharge their firearms significantly more on a daily basis. While it was

difficult to calculate from the data WS currently collects, it is noteworthy, that the number of firearm-related incidents, relative to the number of rounds fired, is disproportionately low. On the rare occasion that a firearm incident occurs, it is generally the result of an employee failing to comply with WS stated policies and procedures, or failing to exercise the fundamental rules of safe gun handling. It is important to note that the few accidents that WS has incurred involved WS personnel, not members of the public.

Strict adherence to firearms safety rules, a continued emphasis on training, and well documented training program in each state will minimize the chances of further firearms incidents.

Priority Recommendations

The top priority recommendations made by the firearms reviewers were as follows:

1. Wildlife Services firearm safety training should be standardized. The NRA is the only nationally recognized firearm safety training organization. Wildlife Services should adopt the use of NRA certified instructors, use of NRA curriculum (to include their three fundamental safety rules) and certification standards for pistol, rifle and shotgun, NRA proficiency standards, NRA testing, and NRA certification for WS employees. Additional state-related firearm safety training may be added, such as information regarding concealed carry laws.

2. The Firearm Safety Committee should devise a system to track all firearm related accidents, incidents and safety violations, regardless of whether injury or property damage has occurred. A toll-free, anonymous hotline should be instituted in addition to other reporting mechanisms. The committee should develop an investigative process to respond to reports of unsafe firearm situations. Guidelines should be developed for stricter disciplinary action regarding firearm accidents/incidents to include mandatory drug testing and retraining.

3. Wildlife Services directives should clearly address whether shooting out of vehicles is allowed. Additionally, directives should clearly define the phrase "out of vehicles" (e.g. muzzle out of window, person completely out of vehicle). If shooting out of vehicle is indicated, a procedure for transporting the firearm while in pursuit of wildlife should be clearly addressed.

4. Firearms should be transported in vehicles in an approved rack system or hard sided case. When use is not imminent the bolt should be locked to the rear, magazines removed or empty, and safeties on.

5. All firearms that are used by WS employees on the job should be inspected annually. All work performed on these firearms should be initially approved by the State Director and the work should be conducted only by a certified gunsmith. Firearms should be inspected periodically to ensure proper functioning of actions and safeties.

3.4 Hazardous Materials (Chemical and Biological)

Safety Initiatives in Place Prior to Review

The Occupational Safety and Health Administration (OSHA) regulates the safe-use of hazardous materials through its many standards in 29 CFR 1910 such as: Hazardous Materials (Subpart H), Personal Protective Equipment (Subpart I), and Toxic and Hazardous Substances (Subpart Z). In addition, the Environmental Protection Agency (EPA) also regulates the environmental aspects of hazardous materials through its standards in 40 CFR Parts 260-399, which include the requirements for hazardous waste, threshold planning quantities, and spill reporting quantities. Other EPA regulations affecting the use of hazardous materials include the Clean Air Act, Clean Water Act, the Resource Conservation and Recovery Act, and the Federal Insecticide, Fungicide, and Rodenticide Act.

For many years, APHIS has been instrumental in disseminating regulatory and safety information and providing assistance to its various programs and facilities in establishing compliant and effective programs. Leading this effort is the APHIS Safety, Health, and Employee Wellness Branch (SHEWB) with a staff which includes an Industrial Hygienist and an Environmental Protection Manager to assist with issues regarding hazardous materials. The principal written guidance is the APHIS Safety and Health Manual, which has chapters covering OSHA and EPA requirements.

The use of hazardous materials within WS falls into three distinct categories: operations, research, and manufacturing. Within WS operations, the use of hazardous materials is mainly limited to the use of registered or formulated products, which are primarily regulated by the registration labeling requirements and the individual states according to their own pesticide applicator requirements. Within the areas of WS research (National Wildlife Research Center (NWRC), Fort Collins, CO) and manufacturing (Pocatello Supply Depot (PSD), Pocatello, ID) the use hazardous materials such as laboratory chemicals and/or pesticide ingredients is much more prevalent, and these must follow a broader range of regulations and requirements. Both the PSD and NWRC have developed their own specific Standard Operating Procedures (SOP) for hazardous materials and activities at their facilities.

Previous audits of the PSD are as follows:

- An Environmental Compliance Audit conducted on August 17-18, 2004 by the Naval Facilities Engineering Command, applauded the efforts WS has taken to minimize waste generated from the production process.

- An Industrial Hygiene Exposure Assessment conducted on May 5-6, 2005 by Federal Occupational Health, concluded that the overall ventilation and indoor air quality was effective and that worker exposure was well below the applicable standards or recommendations.

- An Oversight Review of Hazardous and Solid Waste by the USDA Hazardous Waste Program Group conducted on July 10, 1995, stated that no imminent hazards or major noncompliance were observed.

Previous audits at NWRC are as follows:

- Several evaluations of the NWRC Biosafety Level 3 (BSL-3) laboratory were conducted in 2006 and 2007 by different experts including the Colorado State University's Biosafety Officer and the National Veterinary Services Laboratory Biosafety Officer. All evaluations helped the NWRC obtain the final certification and permit for operating a BSL-3 laboratory.

- An Integrated Environmental Management System (IEMS) Review conducted by BMT Entech on March 14-15, 2006, which was intended to cover all aspects of environmental, health and safety, security management and compliance activities at NWRC. This produced an IEMS Program Manual and Guidance document for the NWRC.

- A Personnel Management Evaluation Site Visit conducted by the APHIS Safety, Health, Environmental, and Security Team on July 19, 2000, which categorized the NWRC safety program as excellent.

Safe and proper use of hazardous materials at both the PSD and the NWRC, and the safety and health of the employees who work with those materials are the top two management priorities. This is evidenced by the outstanding safety, health, and environmental records at both of these facilities.

Examples of critical program elements already in place are as follows:

- NWRC appointed a Safety and Occupational Health Specialist. This specialist has served for over 15 years as the Safety Officer, Chemical Hygiene Officer, Biosafety Officer (CHO), and Local Radiation Protection Officer.
- A highly developed selection of Standard Operating Procedures at the NWRC which includes detailed procedures on laboratory safety, chemical inventory, hazardous waste collection and disposal, and emergencies.
- A voluntary Occupational Medical Monitoring Program for NWRCs employees.
- Fully permitted Biosafety Level 2 and Biosafety Level 3 laboratories.

In addition to the chemical laboratories, the NWRC also has several biological laboratories that contain biohazardous materials and agents. The Centers for Disease Control and Prevention's (CDC) Biosafety in Microbiological and Biomedical Laboratories (BMBL) provides the standard which provides the recognized guidance for proper facilities, practices, and procedures for working with biohazardous agents. To receive and possess biohazardous agents, an inspection and authorization permit must first be obtained from USDA APHIS. The NWRC has successfully obtained permits for agents such as rabies virus, *Vaccinia*

virus, low pathogenic avian influenza virus, West Nile virus, St. Louis encephalitis virus, and transmissible spongiform encephalopathys. Most of those agents are classified as Biosafety Level 2. However, the NWRC recently redesigned an existing suite of laboratories to Biosafety Level 3 enabling the NWRC to safely conduct research on more virulent agents that affect wildlife.

Review Activities

Review of the WS hazardous materials programs at the NWRC and PSD was conducted by Century Environmental Health (CEH) under contract with Federal Occupational Health (FOH). Century Environmental Health is a private firm that specializes in industrial hygiene, toxicology and risk assessment. During the review, a CEH Industrial Hygienist examined all WS Directives, documents and manuals along with procedures and equipment for storage, inventory, use and disposal of chemicals and biological hazards, employee adherence to policy and safety procedures, use of personal protective equipment, and other applicable safety elements. The hygienist also interviewed WS management and laboratory and manufacturing personnel. As part of the review the CEH team conducted inspections at the National Wildlife Research Center and the Pocatello Supply Depot. As noted by the reviewer, the PSD and NWRC have very different missions, staffing and potential hazards.

Summary of Review Findings

Safety programs at the facilities are strong, comprehensive, and well implemented. No major program gaps or concerns were found. Environmental health and safety (ESH) programs can never be perfectly implemented in any organization; thus, the expectation is that they perform on a satisfactory level and strive for continual improvement. Environmental safety and health programs met the satisfactory level overall but have several areas where improvement can be made.

Environmental Safety and Health operations at both facilities are essentially in compliance with federal requirements and in conformance to CDC guidelines and other recommended work practice guidelines. With operations that involved so many staff members and diverse work activities improvements can be made.

Areas with the best performance included waste management, operation of BSL-2 and BSL-3 laboratories, written plans and SOPs, exposure controls, medical monitoring, and spill response preparedness. Areas needing improvements included training, inventory management/hazard communication, labeling, ventilation systems, chemical hygiene, and staff resources. While all of the recommendations in the final report should be considered and implemented by WS when feasible, the more immediate needs include the following recommendations.

Priority Recommendations

1. Formalize training programs for each facility or common job type in an SOP including initial and on-going training for each area.

2. Conduct job hazard analysis for each potentially hazardous task. For jobs where hazards are indicated by job hazard analysis, safety procedures should be developed by the facility's safety manager in cooperation with the project manager.

3. Periodically inspect areas where hazards exist to verify that work practices and controls are properly implemented. These inspections should be conducted and documented by the safety manager

4. Provide junior level support to the CHO.

5. Consider out-sourcing environmental compliance work at the PSD that can be performed on a periodic (e.g. quarterly) basis, while continuing to perform the day-to-day recordkeeping that flows into the in-house periodic compliance report systems.

6. Investigate operational parameters for pressure drop on the HEPA filter. Develop a means of checking for proper pressure drop and change schedules for pre-filters and HEPA filters, and recordkeeping system for these activities.

7. Determine the compliance requirements for filter types, filter-change criteria, and pressure drops. Include these criteria in SOP for operation of the exhaust filter system. Develop recordkeeping on filter changes and (optionally) on pressure drops at BSL-3 entrance and filter bank.

8. Develop computerized chemical inventory systems where they are not in place at the PSD and NWRC.

9. Implement an on-line MSDS system for facilities with computerized inventories. This should be integrated into the USDA-wide chemical inventory system if the USDA system will be completed in the near future.

3.5 Immobilization and Euthanasia Drugs

Safety Initiatives in Place Prior to Review

The WS Chemical Immobilization and Euthanasia (I&E) Committee was established in 1990 to identify program I&E needs, and to determine ways of incorporating immobilizing and euthanizing drugs into wildlife damage management. The veterinary medical community relies heavily on chemical (drug) techniques to accomplish the safe and humane capture/euthanasia of animals. The majority of these chemicals are state and federally controlled substances. Legislation passed by Congress (Animal Medicinal Drug Usage Clarification Act of 1994 - AMDUCA) also reflects the public, professional, and regulatory demand that individuals and organizations involved in chemical immobilization and euthanasia of animals meet veterinary medical standards. Wildlife Services recognizes and supports this momentum toward improved, safer and more humane methods.

Current regulatory standards and humane guidelines are primarily focused on domestic animals in commercial, clinical, or laboratory conditions. Wildlife management activities conducted in field conditions are not addressed by these standards. Wildlife Services has developed a training program, field protocol, and internal supervisory guidelines that accommodate both wildlife management and regulatory needs. This training program enables WS to meet program objectives of using more humane methods, improving safety for WS personnel and the general public, raising the professionalism and credibility or WS biologists, and ensuing regulatory compliance and increased environmental sensitivity.

Wildlife Services employees are provided I&E training from highly qualified internal and external experts in animal handling and immobilization. Wildlife Services has pursued protocol and training goals by contracting with a wildlife veterinarian to write a training manual that has become the foundation of an overall I&E training program. This manual has provided an educational resource, and has also helped to refine WS' I&E policy and program implementation. Required subject matter currently includes laws and regulations, pharmacology of selected drugs, dosage calculations and recommendations, equipment and techniques, safety/first aid, security, disposal, record keeping, ethics, and professionalism. The need for improved delivery of professional I&E training programs led to the creation of an online I&E course. The course was originally developed from the WS I&E Manual by Colorado State University in 2003. The online course was transferred to the Berryman Institute through Mississippi State University in 2006. Currently, WS has 463 employees trained/certified to use I&E drugs in the course of their duties.

Wildlife Services also recognized the need to establish a system to adequately document I&E activities and to improve accountability. Wildlife Services currently meets these documentation needs through the Management Information System

(MIS), Controlled Materials Inventory System (CMITS) and, additionally, utilizing DEA and/or state record-keeping forms.

Wildlife Services utilizes controlled substances ranked by the DEA at Schedule III or lower when immobilizing and euthanizing animals is required. Immobilization and euthanasia drug users are required to have veterinary oversight for their operations. Nationally, the NWRC provides the animal care veterinarian who oversees WS I&E activities. Currently, 40 WS state programs use chemical I&E methods. However, some WS state programs have established cooperative relationships with private, state game & fish, state health, or extension veterinarians in order to train personnel and to obtain the necessary drugs. Several state WS programs have not been able to implement chemical I&E methods due to the lack of a local veterinarian partner.

Wildlife Services encourages and uses partnerships with outside organizations and agencies to meet training and procurement needs when possible. Wildlife Services voluntarily consults with other wildlife veterinarians for training and information on I&E activities and other wildlife veterinary medical issues. Wildlife Services has also established a Memorandum of Understanding (MOU) with the American Association of Wildlife Veterinarians that established a pool of DVM trainers and consultants for each state. Wildlife Services continues to encourage a collaborative partnership with the veterinary medical community and other wildlife management entities.

Review Activities

Review of the WS I&E program was conducted by Global Wildlife Resources (GWR) in conjunction with the Berryman Institute. Global Wildlife Resources provides euthanasia and immobilizing training to many wildlife management professional organizations including WS. To assess the degree of safety for WS in the arena of chemical immobilization and euthanasia of wildlife, reviewers identified the major risks associated with the WS I&E program; reviewed agency policies, directives, and supporting documents; reviewed training requirements, procedures, materials, tracking, and enforcement; visited four state programs to observe drug storage and handling, record keeping, field activities, and other pertinent issues; interviewed WS staff, administrators, and I&E committee representatives; and inquired about and investigated I&E-related accidents.

Summary of Review Findings

Overall, WS is doing an admirable job of addressing safety risks through their policies, administration, training, field operations, and culture. As reviewers discovered during state visits, some programs are highly conscientious about safety, while others are significantly less so. It appeared to be an “all or nothing” situation with each state program. Indeed, reviewers expected their findings to be reflective of the diversity of attitudes and approaches within the broader agency with respect to safety protocols. Some programs are doing nearly everything correctly and have little room for improvement, but other programs must make significant progress to

minimize the risks associated with I&E drugs and create a safe working environment.

In consideration that each program is unique, and that findings and recommendations must be rectified with the reality in each program, the reviewer offers the following analyses and recommendations to increase the level of safety in the WS I&E program. The greatest risk associated with the WS I&E is accidental and intentional loss or unaccountability of drugs. This can result in risk to the agency, the employees, and the public. Addressing this risk includes legally complying with Drug Enforcement Administration (DEA) requirements. The other principal risk is accidental exposure to drugs, which includes direct exposure of field personnel and indirect exposure of the public through consumption of recently drugged animals. Addressing this risk includes legally complying with the Food and Drug Administration (FDA) requirements and providing quality training to further develop safe field practices and conscientious attitudes.

Priority Recommendations

The top priority recommendations made by the immobilization and euthanasia reviewers were as follows:

1. Conduct unannounced, random, and physical (on-site) inspections of state programs to verify that requirements of drug storage and inventory documentation are met. This will effectively prevent potential drug abuses, sales, or loss and ensure that the legal requirements for DEA are met.

2. Clarify, create, and/or enforce policies regarding: a) veterinary supervision of state I&E programs, b) holding and disposal of empty or expired drug vials, and c) transfer of I&E drugs.

3. Empower an independent entity to track the certification status of employees and evaluate the acceptability of training reported by State Directors and other employees to meet certification requirements. This same entity could be responsible for creating and delivering integrated, standardized, and centralized training in the arena of I&E.

4. Create an online clearinghouse of all I&E information pertinent to the WS program, including directives, policies, updates and memos, training curricula, technical information, and other pertinent resources.

5. Increase accountability among administrators, State Directors in particular, to ensure safety protocols are followed. This includes accountability for all I&E policies, but in particular issues relating to drug inventories, storage, and documentation, veterinary supervision, and training requirements/certifications.

6. Standardize terminology and format for drug inventory forms. The exact format is less important than that the forms are self-apparent, relatively standardized, and allow for the diversity of individual programs.

3.6 Pesticides

Safety Initiatives in Place Prior to Review
The WS pesticide safety program promotes training, proper use, employee safety, environmental safety, and accountability. Wildlife Services employees who apply restricted use pesticides receive a state-issued Certified Pesticide Applicator license. They also receive additional safety training as determined by the state (continuing education courses) and/or WS program such as use of personal protective equipment (PPE), understanding of pesticide labels and their Material Safety Data Sheets (MSDS), proper reporting of pesticide application requirements, and the proper field application of each pesticide that they use.

The WS pesticide program underwent an audit by the USDA Office of Inspector General (OIG) after the Management Alert in 2001 regarding hazardous materials inventory and accountability. Wildlife Services worked with OIG to refine and strengthen hazardous materials management. All OIG 2004 Audit Report recommendations regarding hazardous materials management have been implemented, primarily through policy improvements and development of revised directives to refine the inventory and reconciliation processes. The audit is officially closed. Examples of these improvements include WS Directives pertaining to pesticides and hazardous materials were developed or updated, WS Control Materials Inventory Tracking System (CMITS) was developed to provide a robust accountability and reconciliation procedures, and pesticide storage and security for WS offices and duty stations were updated.

Review Activities
Review of the WS pesticide program was conducted by EnviroHygiene, LLC under contract with FOH. EnviroHygiene is involved in all aspects of consulting for integrated environmental and safety auditing, pesticide use and safety and related training. During the review, a EnviroHygiene representative examined all WS Directives, documents and manuals pertaining to management and operations of WS pesticide operations, training requirements and curricula and training records, safety procedures. EnviroHygiene staff also interviewed WS management and field personnel. EnviroHygiene conducted inspections of four WS state offices.

Summary of Review Findings
The recommendations and observations made by the pesticide reviewer were based on a review of current directives and accident reports for the past five years. Current training, program culture, and program administration were also evaluated. Additional information was derived from site visits in four states, including all district offices in these states, and several residential storage sites.

The reviewer stated that WS employees readily and openly informed him of their responsibilities and commitment to safety, and described what training they felt was adequate for others, and continually emphasized their commitment to comply with

existing regulations and directives. Their basic philosophy was to go beyond the regulation's requirements rather than taking a chance of not complying.

All pesticide applicators were certified state applicators and for those state programs selling pesticides, they had current state dealer licenses. A review of annual inspection reports conducted by the appropriate state authority showed that there were no violations in the past five years at any state or district office covered by this review. There were no federal or state noncompliance issues. One finding indicated non-compliance with a WS directive.

Priority Recommendations

The top priority recommendations made by the pesticides reviewers were as follows:

1. It is critical that the M-44 mechanisms be easily and thoroughly cleaned to prevent accidental injector activation. The newer type of mechanisms should be used. These are the Type 4 produced 2002 to present – no bottom crimp; a retaining pin holds plunger and ejector spring in place – the pin permits field disassembly for cleaning, lubrication or replacement of inner parts. The district supervisors should examine all M-44 devices in the applicator's possession, designate the old-type devices for recycling, and ensure the policy states that only new mechanisms are to be used. In addition, the cleaning technique of using vinegar and water to clean the mechanisms should be further evaluated.

2. The accident investigation program should be strengthened to provide an accurate assessment of a significant event so that adequate preventive actions can be implemented to prevent any recurrence. Those significant events must be first identified as significant, reported to the appropriate authority in an expeditious manner, and finally, investigated as close as possible to the time of occurrence. Significant events must be elevated through the management structure to ensure that an unbiased, professional evaluation is conducted.

3. All applicators must carry a decontamination kit containing at least one quart of water, coveralls (they could be one-use, disposable overalls), a towel, and soap in case the applicator splashes some pesticide on him or herself.

4. The WS program should produce several short, pesticide specific, i.e., M-44, LPC 1080, DRC-1339, safety training programs that can be placed on the WS Intranet and be copied to a DVD for distribution to remote locations not having high-speed internet service. These programs should stress safety, the use of pesticide/task-specific personal protective equipment, and should clearly delineate correct application procedures

5. Pesticide storage should be clearly defined in the directives as incidental, small, or large. Incidental storage areas should not be defined as pesticide storage areas with regard to inspections, storage requirements, and other items mentioned in any directives.

3.7 Vehicles

Safety Initiatives in Place Prior to Review

Policies and procedures for vehicle use by government agencies have existed for many years. The General Services Administration (GSA) has maintained standards which deal with fleet management systems and motor vehicle management of owned and leased vehicles (41 CFR 101 and 102). Among the GSA regulations, is the requirement to designate Vehicle Accounting Officers within the different organizational levels of the agencies to help enforce the regulations and serve as the point of contact for any necessary reporting. In addition to the GSA regulations, the agency has implemented policies and procedures in the form of the MRP Motor Vehicle Manual (MRP 5400) which was last revised in November 2007. This manual supersedes the previous APHIS Motor Vehicle Fleet Management Manual (APHIS 5400) which had been in existence for many years. As a supplement to the Motor Vehicle Manual, there is an APHIS Directive "Defensive Driver Training Requirements" (APHIS 4790.4, dated 2/10/04), which provides more detailed guidance regarding vehicle use and defensive driver training requirements for APHIS employees.

In addition to the GSA, MRP, and APHIS requirements, WS has taken it upon itself to further develop specific internal directives and polices related to the use of specialty vehicles that are unique to the activities within the program. The directives which are specific to WS include Directives 4.150 "Vehicle Use" and 4.155 "All Terrain Vehicles and Snowmobiles." Both of these directives have also been in existence for many years, and are familiar to all WS programs and employees.

Thus, for many years, regulations, manuals, directives, polices and procedures have existed for the operation of a government-owned or -provided vehicles, which all WS programs and employees have been accustomed to and are in compliance with. The APHIS Safety Health and Employee Wellness Branch (SHEWB) along with the National APHIS Safety and Health Council (NASHC) have been instrumental in seeking and providing authorized sources of training to be used to meet the defensive driver training requirements. One of those authorized sources is the National Safety Council (NSC), which is recognized as a leader in safety-related training and provides self-instructional video and workbook, or internet-based training courses, which are available to all WS employees.

Both the APHIS and WS Safety and Health Councils have a vested interest in the safe use of vehicles, and are proactive in disseminating information regarding vehicle accidents data, safety issues, recalls, and training sources. Both councils also sponsor an annual Safety Incentive Awards Program, and within WS awards programs, the Defensive Driver of the Year Award consistently receives the most number of nominations.

The WS vehicle-use program has never been audited before, but it is evident by the lack of serious vehicle accidents that the WS Program has an exemplary safety record when it comes to the use of motor vehicles.

Review Activities
Review of the WS vehicle program was conducted by Tidewater Inc. under contract with FOH. Tidewater is a private firm that specializes in all aspects of industrial hygiene, and occupational safety and health, including management and safety of vehicle fleets. During the review, a Tidewater Industrial Hygienist examined all WS Directives, documents and manuals pertaining to management and operations of WS vehicle program, training requirements and curricula and training records, safety procedures. They also interviewed WS management and field personnel. As part of the review, the Tidewater representative conducted inspections at four WS state offices including "ride-alongs," and observations of vehicle use (on and off road, 4-wheeled all terrain vehicle).

Summary of Review Findings
The following observations about the WS Vehicle Safety Program are based on a review of all pertinent documentation on the WS Vehicle Safety Program, interviews with key WS personnel, responses to a survey sent to state and district offices, and on-site reviews.

The WS Vehicle Safety Program is effective. Based upon site visits, WS wildlife specialists, their supervisors, and upper level managers demonstrate a high level of corporate safety culture, at least as it relates to the vehicle safety program. The accident rate of WS vehicles compares favorably with available statistics for government or private vehicle usage. However, an increase in the number of accidents over the last three years, even though it is still below comparable GOV and private vehicle rates, underscores a need for a more structured component to the WS Vehicle Safety Program.

To bring the vehicle safety program to the next level, WS should strive to continually improve leadership, employee involvement, measurement, and continuous improvement. Leadership is critical to improving a safety program. Managers and supervisors at all levels need to support and implement the identified changes. A common misconception is that it is the duty of the safety person to make changes. Although the safety person has many responsibilities relating to employee occupational safety, it is the responsibility of managers to implement changes and keep attention on the program. Supervisors should use the existing awards program. Employee involvement can be increased by nominating more employees for vehicle awards. With respect to measurement, a number of improvements can be made to obtain better data on the number and types of motor vehicle incidents actually encountered. The intent of measuring is not to enforce punitive measures, which can actually reduce reporting and affect morale in a negative way, but to identify trends and implement corrective measures. A requirement of this vehicle study, (e.g., establishing systems to monitor safety compliance) suggests that data

collection will result in continuous improvement. However, unless action is taken based upon this data and resources are committed do so, data can remain unused. A strong commitment to continuous review plus follow-up action can ensure that continual improvement will occur.

Priority Recommendations

The top priority recommendations made by the vehicle program reviewer were as follows:

1. Investigate the use of newer technologies to enhance communications. Given the critical nature of communications in case of an accident and in the supervisor-employee relationship, cell phone boosters, "bag phones" (these are higher-power cell phones such as the Motorola M800), and personal locator beacons (PLBs) should be investigated for those wildlife specialists who frequently drop out of normal cell phone range during daily activities.

2. Regional safety personnel serve on a collateral duty basis. Given the number of personnel in the field within the eastern and western regions who have direct, daily exposure to safety hazards, these persons should be assigned on a full-time basis.

3. Improve roadside safety by the use of a magnetic strobe light that can be placed on the roof of a vehicle, marker cones placed behind and at a distance from the vehicle to warn approaching traffic, and the use of high-visibility vests. Collapsible cones are now available that can be locked inside tool boxes or elsewhere in pickup trucks to minimize the possibility of theft. Such cones are also available with LED blinker lights to improve visibility, especially in dark or semi-dark conditions.

4. Establish a separate safety budget, independent from other operating budget(s). This will allow needs to be identified and prioritized separately. It will also allow the scope and complexity of safety needs to be more visible. Such needs include not only equipment, but also training, communication, and travel needs.

5. Make information on solutions to common problems available to field personnel by newsletter or possibly a website. Connectivity is limited for many field personnel, and a simple FTP site or website section that does not take a long time to open will make the information more accessible.

6. Establish and implement a more systematic way to ensure compliance with policies and procedures, (e.g., WS directives, safety manual).

3.8 Watercraft

Safety Initiatives in Place Prior to Review
USDA WS Safety Directive 2.601 (dated 10/07/05) enumerates many of the safety policies of the WS Program. It states that supervisors will promote a safe working attitude among employees. Additionally, supervisors must also provide employees with adequate information, training, and personal protective equipment to optimize employee safety.

USDA WS does not currently have a directive on watercraft use. However, WS Directive 2.601 states that WS programs must adhere to state laws, this includes the operation of watercraft. Laws and requirements may that differ from state to state. Watercraft training in each state must meet guidelines set by the National Association of State Boat Law Administrators (NASBLA). This training requires either taking a hands-on class or successfully completing an on-line boater safety program.

WS state programs must meet the requirements set forth by NASBLA and the state. However, many WS state programs far exceed the requirements set forth by state law.

- Several WS state programs have state-specific directives/policies on watercraft use and safety.

- Several WS state programs require additional first aid and safety training for employees who operate watercraft.

- Many WS programs make recommendations from the state mandatory. For example, the state requires that there be a personal floatation device (PFD) aboard for every passenger. Some WS programs make it mandatory that you wear the PFD at all times while on the boat.

- Several WS programs require hands-on training on watercraft safety and lifesaving. These programs exceed NASBLA and are intensive programs approved by the US Coast Guard.

- WS programs have invested the funds necessary to ensure that the watercraft have all the safety equipment required by the state, and in most cases additional safety equipment exceeding state law.

Review Activities
Review of the WS watercraft use was conducted by the Maryland Department of Natural Resource Police (NRP). The NRP provides training to all Maryland residents operating boats in Maryland waters and to Maryland Wildlife Services boat operators. The Maryland NRP boating safety program is considered one of the best in the U.S. During the review, an NRPS Officer examined all WS Directives,

documents and manuals pertaining to management and operations of WS watercraft operations, training requirements and curricula and training records, safety procedures. The NRP officer also interviewed WS management and field personnel. The NRP conducted four inspections at WS state and district offices.

Summary of Review Findings

Wildlife Services employees use many different watercraft types, classification, and size to complete missions in a variety of environments on and near the water. These vessels include: one and two person kayaks, canoes, standard outboard motor boats, Beaver Tail long shank air cooled outboards, high power jet boats, and Jon boats. Operational environments include: the turbulent waters adjacent to huge hydro-electric dams, some of America's largest rivers and swamps in the Southeast, structures like bridges and ferry docks on the West Coast, the busy intra-coastal waterway, and floating marshes on the Eastern Shore. Wildlife Services employees often work at night, or at sunset. They may work alone, or sometimes from their own homes, resulting in supervisory accountability challenges. Many missions require lengthy trips to remote areas, work on shore in difficult terrain, and a return by boat late in the day or the next morning. Vessels are often loaded with equipment including beaver traps, poles, chain, pyrotechnics, and shotguns.

Maryland Natural Resources Police (NRP) reviewers visited several WS sites throughout the country. Interviews were conducted with supervisors and staff. The reviewers accompanied boat operators on site as WS personnel performed typical duties, examined safety equipment and vessels, and reviewed written policies. Without exception, the reviewers were treated cordially, and in a highly professional and open manner by all WS employees. The reviewers were impressed by the dedication to the WS mission and the concerns for safety demonstrated by all staff including supervisors. The reviewers wish to acknowledge the exceptional safety record overall of WS since its inception.

At most sites, reviewers found little or no written policies concerning basic safety requirements including use of personal flotation devices (PFDs). One notable exception was a state that had a policy stating: "that lifejackets must be worn while operating all types of watercraft." There were few written policies regarding certification of boat operators, inspection of safety equipment, checklists, or emergency procedures.

The basic WS safety requirement is that all vessels and operators follow those requirements established by the laws and regulations of the state in which they operate see appendix for WS Safety Directive 2.210. This is not sufficient in that the work environment of WS employees is far more hazardous than recreational boaters for whom state laws were designed to provide minimum safety requirements.

Priority Recommendations

The top priority recommendations made by the NRP reviewers were:

1. PFD use (actual wearing while underway) is mandatory at all locations.

2. Each site should obtain the styles and types of PFDs most likely to be worn including float coats, Auto Inflatable PFDs for hot weather, and comfortable vest style Type 3 PFDs.

3. Safety officers should be appointed for each district. These individuals, in cooperation with supervisors and managers, will develop, in final form, a written policy. This policy would include initial and recurring training, certification of boat operators, emergency operations, search and rescue, safety equipment inspections, float plans, accountability, and proper loading of equipment on the vessel.

4. Wildlife Services should purchase handheld GPS chart plotters (such as the Garmin Map 76 monochrome unit). Training, on the unit should be conducted prior to issue along with periodic refreshers each year.

5. Wildlife Services should maintain strict adherence to vessel placards in regard to weight and number of passengers on board.

6. Wildlife Services Safety Officers should obtain (often free from boater safety organizations) and post conspicuously signs, and safety posters. This sends a message that safety is important!

3.9 Zoonotic Diseases

Safety Initiatives in Place Prior to Review

Wildlife Services is primarily a wildlife damage management program managed and supervised by wildlife biologists. The primary purpose of the program is to assist people who are experiencing conflict with one or more wildlife species by removing or mitigating the conflict. Although WS manages wildlife damage rather than wildlife, per se, contact with wildlife and wildlife habitat constitutes a major facet of the work done by WS personnel. Since zoonotic diseases and parasites are a natural component of wildlife populations and their environment, WS personnel are routinely subjected to potential contact with various wildlife diseases, infectious agents and parasites.

For many years WS personnel have worked in close contact with wildlife, conducted work within wildlife habitat or in areas containing wildlife-related debris, and handled wildlife, wildlife parts or animal remains. In earlier years, few or no precautions were taken when close contact with wildlife or wildlife-related objects was made. If any protective clothing was employed, it was generally limited to gloves which were usually cloth or leather rather than latex/nitrile. The purpose of the gloves was aimed more at protecting the hands from excessive wear than for protection from contagions. This level of "comfort" around wildlife was not unique to WS and, in fact, is fairly common within wildlife management organizations, groups and agencies. To many wildlife biologists, technicians or enthusiasts (hunters) wildlife species are generally not considered to be associated with diseases unless or until a specific disease situation is encountered.

In 2004, WS developed and initiated the Surveillance and Emergency Response System (SERS). Wildlife Services developed the SERS program with the intention of addressing both the routine monitoring of wildlife-related diseases (surveillance) and to prepare for rapid response to acute disease outbreaks. SERS initially hired 23 Wildlife Disease Biologists (WDBs) and stationed them within WS state programs across the nation. The majority of the WDBs were assigned to oversee more than one state. In 2007, the number of WDBs was increased to 44 and the oversight responsibility of the majority of the WDBs was reduced to one state. As of 2007, 43 states have a WDB residing within the state and the remaining seven states have a WDB assigned to them.

When WS developed the SERS program, the intention was to target wildlife biologists to fill the WDB positions rather than animal health specialists or veterinarians, because the purpose of the position is primarily wildlife-oriented rather than disease-related. The WDB is a wildlife professional whose job it is to monitor the health of wildlife communities through sampling wildlife. The WDB was intended to be a wildlife biologist with knowledge, skills and abilities relating to capturing and sampling wildlife for diseases identified as suspect or targeted. Special training in necropsy technique, foreign animal diseases, and personal

protective equipment is provided the WDB on a routine schedule and in-the-field exercises or projects are assigned to simulate emergency response mobilizations.

The SERS WDB is stationed with and supervised by the WS state program of the state the WDB is assigned to cover. Because the WDB is stationed with the WS state program, the knowledge, skills and abilities acquired by the WDB is readily available to the state program. While the WDB is not intended to represent a formally trained health technician or disease specialist, the WDB does represent a source of locally pertinent disease information, disease safety information and PPE use information. All WDBs are encouraged to share their knowledge of diseases, disease safety and PPE use with state program personnel and to be readily available to both State Directors and District Supervisors to provide talks and training sessions at state and district meetings.

The SERS WDBs are designated as WS' primary first responders and are prepared to report to an incident within 24-48 hours. The following items pertain to all SERS WDBs.

- Receive an annual FOH medical physical to ensure they are medically fit to conduct work in full PPE gear and to be allowed respirator fit-testing.
- Are fit-tested for a respirator annually.
- Are provided with a supply of PPE equipment and PPE use and safety training is conducted as part of required training.
- Are required to participate in necropsy and FAD training courses and to take refresher courses at least every other year.
- Are annually subject to mobilization assignments which require they report to work assignments at a distant location on short notice. These assignments provide practice for rapid response assignments.
- Have access to SERS emergency response trailers. SERS has three emergency response trailers that are positioned around the country and available for use in emergency situations. These trailers are fully equipped with a large supply of PPE, sample collection supplies, generators, autoclaves and other surveillance and emergency response equipment and supplies.
- Have access to the SERS supplies warehouse in Fort Collins. PPE equipment and supplies are stocked that can be used to augment the trailer supplies if needed.

Wildlife Services recognizes that the program's field personnel are also potentially exposed to wildlife-related infectious agents and parasites.

- All WS field personnel are encouraged to be vaccinated for rabies and to have their titers checked routinely.
- All WS field personnel are routinely provided with latex/nitrile gloves and informed that replacement supplies are readily available.
- Supervisors are instructed to use state and district meetings to remind field personnel that they are to use protective gloves when handling wildlife or wildlife-related objects.

- All WS field personnel are instructed to record in their field diaries any/all incidents where they encounter parasites (e.g., fleas, ticks), or sick animals or make unsafe contact with wildlife during work activities.
- All WS field personnel are provided with an APHIS form 260 (Medical Alert Card) which provides them with an "official" statement that their position with the program puts them in contact with wildlife and thus, in cases of illness, medical personnel should consider "exotic" enzootic diseases as well as the more routine generic illnesses they usually see. This medical alert card in combination with information on possible diseases they might have encountered, and information about what symptoms they should consider suspicious, is intended to provide WS personnel with enough information to allow them to inform their medical professionals of the specific risks they have as wildlife professionals.

Review Activities

Review of the WS zoonotic disease program was conducted by the Berryman Institute, the premiere non-governmental organization dedicated to resolving human-wildlife conflict. To assess the degree of safety for WS in the arena of zoonotic diseases, reviewers evaluated WS Directives, documents and manuals pertaining to management and operations, training requirements and curricula and training records, safety procedures. They also inspected four WS state programs and one rabies baiting operation to observe equipment use, field techniques, administrative support, interviewed WS staff and administrators and investigated and inquired about zoonotic infection reports.

Summary of Review Findings

Overall, WS is to be commended for its zoonotic safety record and for the creation of the National Wildlife Disease Program (NWDP), which is an important and innovative approach to infuse zoonotic disease awareness and safety throughout the agency. But, there is always room for improvement, and WS can improve on an already good zoonotic safety record. WS personnel are professionals who are committed to the program's mission. Supervisors and managers must understand the range of talents and needs of their employees, and appropriately tailor safety solutions to the workforce. While attention to the details of safety was evident during most site visits, there were occasional lapses in appropriate behaviors and techniques. It would appear that the desire to accomplish the WS mission as safely as possible is the goal of all WS personnel encountered. Achieving this goal will require some increased vigilance on the part of leadership and the allocation of appropriate resources (financial and man-power) to accomplish this task. Perhaps most importantly, the development of agency-wide safety directives, protocols and procedures to protect personnel against zoonotic disease risks will allow the development of effective training protocols and subsequent field practices.

Wildlife Services' Wildlife Disease Biologists (WDBs) work in an environment where there is a potential for contracting zoonotic diseases and parasites if proper care and practices are not conducted. Their principal duties involve frequent

handling of potentially diseased animals, and they are WS' 'first responders' to disease outbreaks. The NWDP currently offers advanced training to WDBs in animal handling techniques, use of personal protection equipment and bio-security. For the safety of these employees, it is imperative that WS continue to provide advanced training on wildlife diseases and personal protection from job-related health hazards. A comprehensive list of skills/knowledge for wildlife disease biologists is needed to serve as a benchmark for future training and hiring. The risk of contracting zoonotic diseases is not unique to WDBs. A high percentage of Wildlife Specialists and general biologists routinely handle animals or work in environments where there is a high risk of exposure to animal borne diseases and or parasites. Historically, the protection of these employees from zoonotic diseases has not been a priority of either the employees or the Program. Wildlife Services should take steps to increase the general knowledge of all WS field personnel about potential risks and mitigation techniques to avoid disease threats when handling animals. WS' WDBs should be assigned the responsibility of providing information to employees in their assigned areas on the zoonotic diseases of concern in the work area, safety techniques, and personnel protection, as well as advice on procedures for documenting exposure and seeking medical treatment.

Priority Recommendations

The following recommendations were deemed the most important recommendations for WS, in order of priority, which should be addressed immediately. Although these are prioritized 1-8, they should all be considered essential and, in fact, they build upon each other.

1. Develop a directive to address the real and potential risks of zoonotic exposure and disease.

2. Identify regional (if not by state) zoonotic disease risks that is cross referenced to the animals that may transmit each disease. Make this information available to all personnel.

3. Continue to develop a higher level of expertise about zoonotic diseases among wildlife disease biologists.

4. Initiate discussions within the agency and with OWCP to address the concern that many zoonotic diseases can and are contracted as part of WS work responsibilities, but that these exposures are difficult to document and thus file OWCP claims.

5. Develop agency-wide zoonotic disease safety protocols.

6. Establish a training academy (distance component as well as local or face-to-face practical training), which incorporates zoonotic disease information into all aspects of WS activities.

7. Maintain a positive work environment with open communications.

8. Integrate wildlife (zoonotic) disease awareness into all aspects of WS activities.

4. SUMMARY OF BROAD-SCALE REVIEW FINDINGS

4.1 Current Safety Culture

The nature and extent of safety needs within WS has increased dramatically over the last 100 years. Traditional activities such as the use of trapping and shooting are still a large part of the WS program, but the variety of activities WS is involved in has mushroomed to include disease surveillance, bird and mammal management at airports, dams, buildings, highways, parks and in a variety of agricultural settings, as well as small predator management for protection of threatened and endangered species, and other conservation activities. Reviewers found that the WS Program addresses diverse wildlife damage issues involving complex safety challenges. Much of the work accomplished by WS is inherently dangerous, and as WS continues to grow to meet new and more complex demands, a sound, aggressive safety program will be paramount to the program's success.

Reviewers stated that WS is doing a commendable job of fostering a philosophy and culture that embodies a strong safety ethic. In most state programs, and at the national level, reviewers reported finding committed professionals who placed high importance on personnel safety. This positive attitude was supported by State Directors who either addressed safety issues themselves or assigned safety-conscious employees to monitor and improve employee safety. With support from the APHIS Safety, Health and Employee Wellness Branch, and National APHIS Safety and Health Council, WS developed a safety system around the APHIS model which is based on Occupational Safety and Health Administration (OSHA) standards. The WS safety program is comprised of a national WS Safety and Health Council, safety officers at various program levels, and safety committees and protocols that have resulted in an environment that has produced surprisingly few accidents relative to the nature and extent of WS activities. Wildlife Services has also developed excellent working relationships with agencies and organizations that regulate or have a vested interest in workplace safety. In reference to the explosives program, the reviewer stated that "*Wildlife Services has an outstanding explosives and pyrotechnics safety and security program and fosters a culture, from top to bottom, that promotes safety. The WS explosives and pyrotechnics safety and security program could serve as a model for other agencies or groups looking to improve their own program."* All reviewers commented favorably on the effort and success WS has had overall with its safety programs, stating that employees and management truly sought to operate in the safest way feasible.

Reviewers also encountered the occasional situation where this level of enthusiasm and competence was lacking. Some reviewers found the culture and attitudes towards safety within some WS state programs to be essentially "all or nothing." In those states, it was noted that while all WS personnel attempted to operate safely, the general working culture and lack of information/training/discussion did not support proper safety protocols. Thus, while the desire to accomplish the WS mission as safely as possible was prevalent among the WS personnel encountered,

management must emphasize its importance and provide adequate financial and personnel resources to accomplish a universal safety culture within WS.

Some of the general recommendations made by reviewers to improve the safety attitudes and culture within WS include the following:

- Wildlife Services should make better use of the existing awards programs and develop new and creative ways to acknowledge exemplary safety behavior.
- Wildlife Services should establish and facilitate an information-sharing process.
- The WS Safety and Health Council and all committees should become more proactive on safety issues.
- Display safety posters and other visual safety information to reinforce safety on bulletin boards, safes and in vehicles both in the state and field offices.
- Managers should ensure the highest quality of training that is available to all appropriate employees. Initiate and encourage mentorship programs.
- Managers should create opportunities for isolated employees to work with others, either within the state or in an exchange program with other states.

As previously stated, overall the reviewers invited to evaluate WS safety programs and culture were impressed with the types of work WS conducts in relation to the number of accidents the program experiences. The fact that in many areas accident rates are lower than could be expected considering the nature and amount of work conducted, is testament to an already strong safety culture within the Program.

4.2 Safety Program Administration

Reviewers commented that some WS Directives are vague and do not provide adequate guidance for state programs. Directives should clearly set the baseline standards for WS activities. Two components of WS operations evaluated in this review, watercraft and zoonotic disease, are not currently addressed by a specific directive. Wildlife Services should develop directives for these activities. Safety Directive 2.601 requires WS to meet state standards for watercraft operation, but because WS sometimes operates watercraft in more hazardous environments than recreational boaters, it should establish a directive that requires higher training and safety standards than those required for recreational boaters. Wildlife Services should put a directive in place that specifies minimum safety standards for protection against accidental transmission of zoonotic diseases and parasites that is applicable to all WS field personnel. Well-crafted directives in both of these program areas, watercraft and zoonotic disease, would provide the basis for developing strong safety programs.

Because the risk of contacting zoonotic diseases and parasites during daily activities is a real facet of WS field activities, WS should make sure APHIS, the Department of Labor, and the Office of Worker's Compensation Program (OWCP) recognize disease and parasites as an occupational hazard. As a recognized occupational hazard, efforts should be made to make it easier for personnel to document exposure and submit OWCP/medical claims. Wildlife Services should also explore

the possibility of providing both pre- and post-exposure and annual blood testing for all employees covering all potential diseases.

The WS safety program is currently administered by the National WS Safety and Health Council, special emphasis committees, and the appointment of state office Safety Coordinators, and regional Collateral Duty Safety and Health Officers (CDSHO). This structure appears to function very well for some states and in some areas of program safety. Another management approach is to have a centralized and staffed safety program. Review final reports were evaluated for recommendations regarding the need for changes in the administration of the safety program and the need for additional safety staff within WS. Five of the nine reviewers made specific comments on these topics.

- Vehicles – "During interviews it was learned that Regional safety persons served on a collateral duty basis. Given the number of personnel in the field within the Eastern and Western Regions who have direct, daily exposure to safety hazards, these persons should be assigned on a full-time basis."
- Explosives and Pyrotechnics – "Ensure that at least ½ FTE (full-time employee) be devoted to the national coordination of the WS explosives and pyrotechnics safety and security program."
- Watercraft – "Safety officers should be appointed for each district."
- Hazardous Materials – "Provide junior level support to the Chemical Hygiene Officer" at the NWRC.
- Aviation – "Serious consideration should be given to the addition of another full time Certified Flight Instructor (CFI) to the Cedar City training facility staff. . . An additional CFI would provide more timely checking (evaluating pilots during a flight) and enhance standardization and thus safety."

A clear consensus was not achieved on whether a program-wide safety officer is recommended. However, this may be a function of each review being limited to one safety area rather than the programmatic perspective. Reviewers were not asked to make comments on the need for a program-wide safety officer. Despite the absence of universal recommendation, most reviewers either explicitly or implicitly supported an increase in dedicated safety personnel. It was also apparent in many reviews that an effective safety program must receive adequate, dedicated funding from management.

4.3 Safety Program Funding

Many reviewers recommended that WS should have a dedicated budget to provide the resources necessary to develop all the components of a strong safety program such as: setting baseline safety standards, training and certifying employees, training instructors, building systems to track training needs and accidents, distributing safety reminders and informational materials, allowing travel for inspections and to conduct training, supporting awards programs, conducting accident investigations and implementing corrective measures when needed.

Wildlife Service projects are often funded through local sources. One reviewer reported encountering a stronger allegiance to the local cooperator than WS. This stronger allegiance and relationship can lead to a culture where "getting the job done" can supersede safety and compromise the State Directors' ability to guide and direct field employees. Reviewers understood the need for WS state programs and personnel to meet the expectations of cooperators, but they emphasized this type of relationship can not be allowed to dilute the importance of safety and attention to detail. Indeed, WS should continue to create a culture where safety protocols are viewed as part-and-parcel of every successful project.

4.4 Supervisor and Employee Responsibility

Reviewers noted that WS Directives should clearly state that supervisors must take immediate action to evaluate risks of mission activities and minimize any impact they have on safety. It is the supervisor's responsibility to provide employees with high quality training and appropriate safety equipment to perform WS mission duties. Supervisors should also ensure employees are properly prepared to perform job-related functions (e.g., possessing a current motor vehicle license, Drug Enforcement Administration (DEA) certification, or pesticide applicator certification). Supervisors should conduct annual review visits (field and office) and "ride-alongs" with each field employee. To that end, WS should continue to develop clear, enforceable guidance outlining Program safety standards and clearly communicate them to employees. Wildlife Services should implement a more rigid drug-testing program for hiring employees involved in hazardous activities (e.g., firearms, aviation, explosives etc.) and for employees involved in accidents. Greater disciplinary and corrective action should be taken in regards to negligence and policy violations that lead to accidents. Ultimately, each employee should be held responsible for working safely and should be accountable for violations.

Simple tools can be employed to demonstrate a supervisor's commitment to safety. Employees working remotely should be provided a check-in/check out procedure or emergency rescue locator devices. Safety posters and other visual safety information to reinforce safety should be displayed in the state and field offices and in vehicles. Supervisors should make better use of the existing awards programs and explore new and creative ways to acknowledge exemplary safety behavior.

4.5 Training

Wildlife Services currently has extensive safety-related training requirements for many of the activities included in this review. Wildlife Services needs to develop a more formal, standardized approach to training, including tracking and defining required training curricula, determining acceptable sources of training, and establishing standards for training frequency and certification. Required standards and the consequences of failing to meet them should be clarified within each area. This level of guidance would require significant oversight and a structured tracking system to implement. One reviewer suggested WS develop a training academy to facilitate developing a formal training program. In addition, WS should establish a

formal information-sharing process. This could be as simple as providing a list of trainers' phone numbers or starting a forum for exchanging ideas.

4.6 Information Management

Better information management is recommended for all nine components. Six of the nine reviewers made recommendations for improving or developing databases or tracking systems for safety-related information. Wildlife Services could benefit from a formalized information tracking system in areas such as employee training and certification, chemical and hazardous materials inventory, dissemination of safety information (i.e., MSDSs), monitoring accidents and minor incidents, and monitoring employee health and safety conditions.

APPENDIX I
WILDLIFE SERVICES DOCUMENTS REVIEWED BY OUTSIDE REVIEWERS

Wildlife Service Directives

1.101 The Wildlife Service Policy Manual
1.201 Mission and Philosophy of the WS Program
2.115 National Wildlife Research Center
2.210 Compliance with Federal, State, and Local Laws and Regulations
2.305 Wildlife Hazards to Aviation
2.340 Chemical Immobilizing and Euthanizing Agents
2.410 Pesticide Use
2.415 M-44 Use and Restrictions
2.420 Livestock Protection Collars
2.435 Explosives Use and Safety
2.465 Accountability and Oversight of Hazardous Materials
2.505 Euthanizing Wildlife
2.515 Disposal of Wildlife Carcasses
2.601 Safety
2.605 WS Safety and Health Programs
2.620 Wildlife Services Aviation Safety and Operations
2.625 Pyrotechnics, Rocket Net Charges, and Incidental Explosive Materials
2.435 Explosives Use and Safety
2.615 Firearm Use and Safety
3.115 Pocatello Supply Depot
4.150 Vehicle Use
4.155 All-Terrain Vehicles and Snowmobiles
4.210 Program Evaluation
4.301 Employee Development
4.305 Meetings and Conferences
4.405 WS Safety and Health Incentive Program

WS Services Safety Related Documents

- Aviation Operations Manual
- Aviation Safety Manual
- Aviation Accident Response Plan
- Standard Operating Procedures for Rocket and Cannon-net Use, August 8, 2006
- Wildlife Services Explosives Training Workshop, What-to-Bring List
- Explosives Handling Procedures for Beaver Damage Management, September 2007
- Environmental Quality Assessment Final Report, December 9, 2004
- Industrial Hygiene Exposure Assessment Report, August 2, 2005
- Hazard Communication Program
- NWRC BSL-3 Employee Clearance Database
- NWRC Biosecurity Plan
- Approval and Training for BSL-3 Workers and Visitors SOP (AD016.01)

- Use and Maintenance of the Sterilmatic Autoclave (IE 033)
- BSL-3 Laundry Procedures (HS021.00)
- Shipment of Biological Substances, Animal Specimens, and Environmental Test Samples (HS 013.02)
- Standard and Special Practices, Safety Equipment, and Facility Procedures for Biosafety Level 2 Laboratories (HS 012.00)
- Inventory and Storage Procedures for BSL-2 Agents and Diagnostic Samples (BT 013.01)
- APHIS Safety Inspection Checklist (Hazardous Chemical Storage, Explosives Storage, and Waste Disposal) (APHIS Form 256-5)
- NWRC Laboratory Training Memo, August 11, 2003
- NWRC Chemical Hygiene Plan (Includes SOPs for Chemical Spills, Shipment Dangerous Goods, Respirators, PPE, Hazardous Waste, HazComm, Chemical Inventory, and Fume Hoods).
- NWRC Labeling Requirements SOP (Draft)
- NWRC Housekeeping SOP (Draft)
- OSHA 300 Logs 2002-2007
- OSHA Form 300, 2002-2007
- Pocatello Supply Depot Pollution Prevention Plan, April 16, 2007
- Pocatello Supply Depot Accidental-Spill Prevention Plan, March 27, 2007
- Pocatello Supply Depot Accidental-Spill Prevention Plan
- Marketing and Regulatory Programs (MRP) Motor Vehicle Manual
- Rocket/Cannon Net Workshop Agenda, June 26-27, 2007, Mississippi State University
- Rocket/Cannon Net Workshop Agenda, June 26-27, 2007
- Explosives Training Workshop, June 26-28, 2007
- Delayed Detonator Workshop, May 20, 2003
- APHIS Safety Inspection Checklist, WS Form 256-5, June 1997
- Checklist for the Use of Nonelectric Shock Tube Detonators, May 2003
- Checklist for the Use of Ez Det Detonator Nonelectric Shock Tube Assembly, June 2002
- Checklist for the Use of Fuse Detonators, May 2003
- Checklist for the Use of Electric Detonators, May 2003
- Delay Detonator Use, December 5, 2003
- Detonating Cord Checklist, May 2003
- Explosives Handling Procedures for Beaver Damage Management, September 2007
- Explosives Inventory Record, WS Form 22, October 1999
- Explosives Specialist Certification / Refresher Training Inspection Form, August 2003
- IME Bulk Truck Marking & Placarding Guide
- IME Emergency Routing Poster
- IME Lock ‘em Up Poster
- IME Poster on Explosive Magazine Emergency Procedures

- IME and ISEE's Guidance on Passing Through Airport Security Checkpoints for Commercial Explosive Professionals, July 2003
- Procedures for Preparing Safety Fuse and Fuse Detonator Assemblies, No. 5A, February 9, 1998
- Product Data Sheets and MSDS Proper Cutting Techniques – Detonating Cord, No. 3A, March 26, 1991
- Mississippi State University Standard Operating Procedures For Rocket and Cannon-net Use, August 8, 2006
- Misfire Procedures Ez Det Detonator Nonelectric Shock Tube Assembly, June 2002
- Safe Practice with Nonelectric, Shock Tube Initiation System, No. 4, March 11, 1994
- Safety Considerations Related to Explosives Inventory Stock Rotation and Disposal, No. 6, April 11, 2007
- Self-Inspection Checklist Residential Storage Sites for Pesticides, Pyrotechnics, Rocket Net Charges and/or Incidental Explosive Materials
- Site Blasting Record, WS Form 23, September 1998
- Step by Step Misfire Procedures Fuse Detonators, May 2003
- Step by Step Misfire Procedures Nonelectric Shock Tube Detonators, May 2003
- Step by Step Misfire Procedures Electric Detonators, May 2003
- Subpart K-Storage
- Tread Day Boxes
- "Transportation Inventory" and "Daily Vehicle Inspection" Form
- Use Restrictions for the Use of Fuse Detonators by Wildlife Services Explosives Specialists, May 2007
- Voluntary Security Checklist
- Wildlife Services Explosives Training Workshop, What-to-Bring List
- Wildlife Services Explosives Program Definitions (undated)

NWRC Specific Documents

- Current Standard Operating Procedures
- Approval and Training for BSL-3 Workers and Visitors (AD016.01 23), July 2007
- BSL-3 Employee Clearance Database
- NWRC Biosecurity Plan, May 10, 2007
- OSHA 300 Logs 2002-2007
- NWRC Laboratory Training Memo, August 2003
- NWRC Chemical Hygiene Plan (Includes SOPs for Chemical Spills, Shipment Dangerous Goods, Respirators, PPE, Hazardous Waste, HazComm, Chemical Inventory, and Fume Hoods)
- Labeling Requirements SOP (Draft)
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- BSL-3 Laundry Procedures (HS021.00)

- Shipment of Biological Substances, Animal Specimens, and Environmental Test Samples (HS 013.02)
- Standard and Special Practices, Safety Equipment, and Facility Procedures for Biosafety Level 2 Laboratories (HS 012.00)
- Inventory and Storage Procedures for BSL2 Agents and Diagnostic Samples (BT 013.01)
- OSHA Form 300, 2002-2007

Pocatello Supply Depot Specific Documents

- PSD Pollution Prevention Plan, April 16, 2007
- PSD Accidental-Spill Prevention Plan, March 27, 2007
- Environmental Quality Assessment Final Report, December 9, 2004
- Industrial Hygiene Exposure Assessment Report, August 2, 2005
- Hazard Communication Program

APPENDIX II
INDIVIDUAL SAFETY REVIEWS

Each reviewer produced a stand alone report for their assigned area. All nine of the reports as submitted to the safety review team are provided in this appendix. In addition to a narrative of their findings, each reviewer made specific recommendations for improving employee safety. These were sorted into seven topic areas relating to different aspects of administering a safety program. The complete list of all the recommendations made by each reviewer follows their respective safety report. The seven areas of safety program administration are as follows.

1. Directives, Manuals, and Operating Procedures
   Reviewers were asked to evaluate written guidance document related to their component including WS Directives, WS or APHIS level manuals (policy, training etc.), and written operating procedures for conducting specific activities.

2. Management and Administration
   This includes recommendations that managers and administration should consider beyond written guidance aimed at improving the oversight and management of employees. Some of the recommendations that might have been included in this category were categorized under "Culture" if it was more related to improving supervisor / employee relations or were actions geared towards promoting a stronger safety culture.

3. Training Programs
   Any recommendations made that related to improving existing training programs, employee certification requirements, or new training needs were included in this category.

4. Need for Additional Safety Staff
   The category only includes recommendations from reviewers that specifically addressed the need for additional staff to oversee safety programs.

5. Equipment, Facilities and Maintenance
   This category includes any recommendation related to changes to new or existing equipment, facilities or their maintenance.

6. Databases and Tracking Systems
   This category includes and recommendations made to improve or develop tracking systems or databases for common WS operations.

7. Culture
   This category includes any recommendations that were directed at or could be interpreted as a means of improving the cultural importance of safety. It could include improving communication among all levels of employees, methods of disseminating safety information, means of demonstrating the importance the program places on safety.

Aviation Safety Report

INTERAGENCY COMMITTEE FOR AVIATION POLICY

AVIATION RESOURCE MANAGEMENT SURVEY TEAM

ARMS REPORT
EVALUATIVE

OF THE
U.S. Department of Agriculture
Animal Plant Heath Inspection Services

CONDUCTED
January 17-26, 2008

DATED
February 15, 2008

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TABLE OF CONTENTS

I. OVERVIEW

A. INITIAL MEETING(S)

The ICAP was requested by the U.S. Department of Agriculture (USDA) Animal Plant Health Inspection Services (APHIS) to conduct an ARMS through a formal letter signed by Mr. William Clay, Deputy Administrator of Wildlife Services dated July 2, 2007.

Numerous telephone calls and emails with Mr. Jacob Wimmer and Mr. Michael Worthern of APHIS were used to coordinate and finalize the ARMS Team members, establish the dates the ARMS Team would travel to the various APHIS locations in Utah and Texas and establish the areas in the checklist that would be surveyed by the ARMS Team as requested by USDA/APHIS/WS.

B. TEAM MEMBERS

The ARMS Team consisted of the following individuals:

ARMS Team Leader
Mr. Christopher Keyes
Federal Aviation Administration (FAA)

ARMS Team Member
Mr. Mike Miles
General Services Administration (GSA)

ARMS Team Member
Mr. Standley Cobb
Federal Aviation Administration (FAA)

ARMS Team Member
Mr. Tony Butcher
General Services Administration (GSA)

C. IN-BRIEFING

On January 23, 2008, the ARMS team conducted the formal in-brief at the USDA/APHIS/WS Aviation Training Operations Center at Cedar City, Utah. Present were:

Mr. Christopher Keyes, FAA, ARMS Team Leader
Mr. Mike Miles, ARMS Team, GSA
Mr. Standley Cobb, ARMS Team, FAA
Mr. Tony Butcher, ARMS Team, GSA
Mr. Jacob Wimmer, APHIS
Mr. Lloyd Burraston, APHIS
Mr. John Eisemann, APHIS

The ARMS Team was requested by Mr. Wimmer to review the following areas from the ARMS GUIDE:

1. Management and Administration
2. Training
3. Safety Management/Administration
4. Operating Procedures, Manual and Directives
5. Operations Records
6. Flight Operations
7. Maintenance Management
8. Refueling Facilities and Operations
9. Aviation Life Support Equipment
10. Physical Security
11. Aviation Accident Response Plan
12. Gold Standard Verification

Mr. Chris Keyes, FAA introduced the ARMS team and discussed the purpose of the ARMS and the areas requested to be surveyed. Mr. Wimmer, USDA/APHIS/WS then introduced the members of USDA/APHIS/WS followed by a brief explanation of APHIS/WS and its mission. All in attendance briefed their respective areas of responsibility in order to give the ARMS team a better understanding of the USDA/APHIS/WS aviation operation. Following the in-brief the ARMS Team began the ARMS process interviewing key personnel.

D. REVIEW PROCESS

The review and evaluation was conducted at the USDA/APHIS/WS Aviation Operations Center at Cedar City, Utah. Prior evaluations were conducted in Junction, Texas (January 17, 2008). The method of the evaluations was accomplished by:

Reviewing available management and operations procedures manuals, reviewing training records, reviewing maintenance records and procedures, reviewing safety procedures and safety manuals, and interviewing USDA/APHIS/WS personnel to include; management, pilots, administrative personnel, maintenance, and contractors as appropriate. Personnel from the Eastern Region were included in the interview process.

The ARMS Team conducted interviews with 15 USDA/APHIS/WS employees and contractors assigned at the various described locations. All persons interviewed demonstrated complete candor and willingness to cooperate. The hospitality extended by all USDA/APHIS/WS personnel was outstanding. Comments from interviewees were based on their individual perceptions. The ARMS Team acknowledges the premise that perceptions can be distorted at times. Never the less, these same perceptions influence the habit and thought patterns of the USDA/APHIS/WS employees. The comments and recommendations of the ARMS Team in this report are opinions based on observations and interviews.

E. OUT-BRIEFING

A formal out-briefing was conducted at the USDA/APHIS/WS Aviation Training Operations Center at Cedar City, Utah, Friday, January 25, 2008, for key USDA/APHIS/WS personnel. The members of the ARMS Team briefed their respective areas and fielded questions from those present.

The purpose of an out-briefing is to allow all persons impacted by the survey the opportunity to question the team as a whole and individually. As stated earlier, the survey comments (Observations and Recommendations) are opinions of the ARMS Team members based on observations and interviews with agency employees. Once the out-brief is accomplished, the survey report is finalized and submitted to USDA/APHIS/WS. The ARMS Team has no further interest in the ARMS Report once it is completed. If the opportunity for rebuttal is not taken during the out-brief the report cannot be easily altered.

The ARMS Report is for the exclusive use of USDA/APHIS/WS that must consider if implementation of recommendations is appropriate. The ARMS Report is not an Inspector General type report. Comments, justifications, rebuttals or specifics to the report are not required or necessary.

Present at the outbriefing were:

Mr. Christopher Keyes, FAA, ARMS Team Leader
Mr. Mike Miles, ARMS Team, GSA
Mr. Standley Cobb, ARMS Team, FAA
Mr. Tony Butcher, ARMS Team, GSA
Mr. Jacob Wimmer, APHIS
Mr. Lloyd Burraston, APHIS
Mr. John Eisemann, USDA [via telecom]

II. EXECUTIVE SUMMARY

The USDA/APHIS/WS operates in accordance with applicable Federal Aviation Regulations (Part 91, Part 43, etc.), Public Law, and the Code of Federal Management Regulations (FMR 102-33) that pertain to a Federal agency aviation operation. There are USDA/APHIS/WS program manuals, policies, and procedures in place designed to effectively manage the organization. It is the opinion of the ARMS Team that the USDA/APHIS/WS aviation program is being operated in a safe, efficient, and effective manner.

As background, the US Department of Agriculture Animal Plant Health Inspection Services Wildlife Services (USDA/APHIS/WS) is a multi-faceted agency with a broad mission area that includes administering the Animal Welfare Act and carrying out wildlife damage management activities. One way the USDA/APHIS/WS accomplishes these responsibilities is through the use of aircraft.

The USDA/APHIS/WS aviation program provides capable, mission-ready aircraft and professional crews trained to conduct the USDA/APHIS/WS mission wherever and whenever required. Some of the aviation missions the USDA/APHIS/WS carries out include animal eradication, bird surveys, mammal survey, delivery of oral rabies vaccines, predator control, and training. USDA/APHIS/WS conducts these missions by using helicopters and fixed wing aircraft. The USDA/APHIS/WS operates in 28 states using 74 agency owned, contactor owned and operated, and "exclusive use" leasing aircraft. The USDA/APHIS/WS flight crews are required to conduct missions that include demanding flight regimes. The central USDA/APHIS/WS training facility is located in Cedar City, Utah and this center supports the USDA/APHIS/WS operations in each state.

The following is a general summary of the USDA/APHIS/WS operations that the ARMS Team evaluated during the survey.

A. MANAGEMENT AND ADMINISTRATION:

It is the opinion of the ARMS team that USDA/APHIS/WS has an appropriately defined organizational structure in place that is staffed with trained, qualified and experienced personnel. It is clear that USDA/APHIS/WS has put significant effort into establishing an aviation management structure that conforms to the requirements contained in FMR 102-33.

During the course of the evaluation, ARMS members interviewed numerous management, support, and administrative personnel. The interviews regarding management were positive. Overall morale of the staff seems good.

The system seems to be working well for USDA/APHIS/WS. Managers felt they had appropriate input into the planning and budget process. All felt their program needs were being met. All managers and supervisors with budget responsibility were especially happy with their autonomy in dealing with their budgets, programs and

challenges. A high degree of team effort was noted between the various program managers in dealing with budget issues and needs.

USDA/APHIS/WS appears to be proactive in its fleet planning with an active and recurring effort to review and evaluate its mission and program.

Overall, indications are that management enjoys the confidence and support of the employees.

OBSERVATION 1: The position of National Aviation Coordinator (NAC) is currently vacant. The duties and responsibilities are being covered by an acting NAC. The past NAC did not have an aeronautical background but did receive some training from the ATOC in the form of Senior Level Aviation Management (SLAM) training.
RECOMMENDATION 1: The NAC, out of necessity, should be a qualified aviator. It may not be necessary, although highly desirable, that they have a background as an APHIS pilot, but they should definitely have aviation experience. It only stands to reason that an individual that is in a position to create and influence aviation policy have aviation experience. In the civilian world, this position would equate to a Director of Operations for an air carrier or air taxi operator. Federal Aviation Regulations (14 CFR Part 119) require that an individual in that position be a current line pilot in at least one aircraft that the operator operates. The position of NAC at USDA/APHIS/WS WS should be filled by a qualified aviator. This will give instant credibility to the position and to the safety and training programs.

OBSERVATION 2: The budget for the aviation program is managed by the WRO budget and Staff Assistant under the WRO Administrative Officer (AO). The AO reports to the Director of the Western Region as well as the NAC.
RECOMMENDATION 2: Budget authority and management should have clear lines of authority. The current organizational structure blurs these lines and makes it difficult for aviation management to ensure funds are expended for goods and services that are required for an appropriate aviation program. The NAC should have a dedicated budget analyst that reports directly to him/her to ensure the program is supported in an efficient and effective manor.

OBSERVATION 3: As a government entity there is much information that must be collected, disseminated, and reported in conjunction with flight operations. APHIS/WS not only has its internal need for the collection of information regarding each flight, but there are other external requirements for information imposed by OMB, GSA and other entities. A review of manuals and extensive interviews indicate that there is no standardized report or means of recording required information. Some pilots report information into the Management Information System (MIS) on a weekly basis, some daily, and some monthly. Some have a crewmember enter the required information. How the information is captured varies from pencil and paper to laptop, Blackberry, or even text message from a cell phone. Information for the Federal Aviation Information Reporting System (FAIRS) is currently being collected in a satisfactory manner by the Aviation Program Analyst through the individual state budget analyst.

RECOMMENDATION 3: APHIS should put together a working group consisting of representatives from all parties within APHIS that need information from pilots at the conclusion of a flight. The goal of the working group would be to identify all information that needs to be captured. This would include operational information, flight and crew information, information for invoicing purposes, and maintenance information. A standard form could be added to the MIS program that a pilot would complete and enter at the completion of a flight. The reporting interval should also be standardized and made a pilot in command requirement. This would greatly enhance management's ability to determine the status of any pilot, crewmember or aircraft, at any given moment. Reporting in a manner such as this is the standard for most government operations as well as civilian operations.

OBSERVATION 4: USDA flight operations are divided into two regions, Western and Eastern. The vast majority of flight operations conducted by USDA/APHIS/WS using USDA aircraft and pilots/crewmembers are in the Western Region. There appears to be adequate oversight of these operations. However, the bulk of flight operations conducted in the Eastern Region are conducted by contract pilots and aircraft. The commercial operators working for USDA/APHIS/WS in the Eastern Region are required, by contract, to be certificated by the Federal Aviation Administration in accordance with 14 CFR Part 135. Because of their lack of aviation background and limited experience with these contractors it appears that State Directors (SD) in the Eastern Region have a tendency to let the Federal Aviation Administration (FAA) conduct oversight of these contract operators as it is the FAA that certificates them. Many of these contract operators meet only the minimum standard for certification due to their limited size. It is very difficult for the FAA, with their limited resources, to conduct effective oversight of these smaller operators.

RECOMMENDATION 4: To ensure the highest level of safety for the USDA/APHIS/WS employees that must fly on these contracted aircraft it is incumbent upon the NAC, ATOC, Safety Officer, and Aviation Safety Inspector-Airworthiness, to provide the ER SD's with appropriate support and oversight to the maximum extent possible. This support should take the form of on-site observations of the contractors operations and well as the document reviews, which they now conduct. Upper management should support the necessity for these key individuals to expand their current level of support/oversight of ER flight operations.

OBSERVATION 5: APHIS aircraft are aging. The airplane fleet appears to be the appropriate aircraft for most of the geographical locations that APHIS operates. However, other aircraft such as small single engine helicopters should be considered for other geographical locations that do not lend itself to airplane operations.

RECOMMENDATION 5: APHIS should develop a planning document that outlines a budget and timetable for the purchase/replacement of aircraft. The plan should consider the cost of operating older aircraft versus newer aircraft as well as determining the appropriateness of a particular aircraft type for the terrain that it is to operate in. Aircraft that are identified as 'scheduled for replacement' should be considered as candidates for the General Services Administration's 'exchange/sale'

program. Older aircraft could be sold and the monies received could be used to purchase newer aircraft for the APHIS fleet.

B. TRAINING:

USDA/APHIS/WS has an established flight training program. The majority of the initial and recurrent training is conducted at the Aviation Training and Operations Center (AOTC) in Cedar City, Utah. The training facility is staffed with a minimum of qualified personnel to accomplish the training mission. The ATOC manager has developed an effective training curriculum using a set of manuals, simulators and training devises that provide outstanding quality training that is geared to the specific tasks of the WS pilot and crewmember. The training promotes safety through standardization. Training records are maintained at the ATOC facility both hard copy and electronically. A review of the records indicates that they are well maintained, accurate and complete. All personnel interviewed indicated that the training has improved dramatically over the past few years and gave it high marks for effectiveness, timeliness, and applicability. The training operation is considered to be outstanding.

OBSERVATION 1: Training conducted at the ATOC is highly specialized and very effective. The ATOC has established an outstanding training facility with specialized curriculums and training devices/simulators that are very effective and specialized for the operations conducted. The training facility is on a par with many FAA 14 CFR Part 141 Certificated Flight Schools. All those interviewed that have attended training of one type or another had nothing but praise for the training. The prevailing opinion is that the training is highly effective and applicable to their job tasks. It is a proven fact that quality training enhances safety.

RECOMMENDATION 1/1: The ATOC has developed an outstanding training program that enhances safety in APHIS flight operations. Upper management should continue to support the training program with necessary financial and human resources that might be required for the ATOC to continue providing outstanding and effective training.

RECOMMENDATION 2/1: For each course of training the ATOC should add a "Completion Standard". This would bring the training curriculums up to industry standards (14 CFR Part 141). In addition, it gives the student a complete understanding of what level of performance is expected of them at the completion of a module of training.

RECOMMENDATION 3/1: The ATOC should develop a policy addressing how unsatisfactory ("U") item(s) on a check flight (pilot evaluation flight) will be processed. By establishing quantitative completion standards (see RECOMMENDATION 1 above) there is no question as to whether a pilot was successful or not. Also, remedial training and how many attempts to satisfactorily complete a maneuver should be addressed. The process should be included in the Aviation Operations Handbook which will become policy as it is signed by the Deputy Administrator. This policy would be a great benefit to human relations personnel should it become necessary to take action affecting an employee's employment status as the reason for the action is quantified and is no longer subjective. This is a standard policy in the air carrier industry.

RECOMMENDATION 4/1: Serious consideration should be given to the addition of another full time Certified Flight Instructor (CFI) to the Cedar City training facility staff. This would alleviate scheduling and resource problems/issues created when the ATOC goes to a State Director to secure the services of one of his/her pilots who provide CFI services. An additional CFI would provide more timely checking (evaluating pilots during a flight)) and enhance standardization and thus safety.
RECOMMENDATION 5/1: When contractors are scheduled to attend training they should be paid a salary in addition to the travel and per diem that is now given.

C. SAFETY MANAGEMENT/ADMINISTRATION:

The USDA/APHIS/WS aviation safety program is outlined in the USDA/APHIS/WS/Wildlife Services-Aviation Safety Manual. The USDA/APHIS/WS Aviation Safety Officer (ASO) manages the aviation safety program. He is a school trained (US Army) aviation safety officer. The aviation safety program meets all requirements of the FMR 102-33 180 thru .185.as well as FMR 102-33.445 and .450. It is operating in an effective manner with all of the required elements of a successful aviation safety program in place.

OBSERVATION 1: The ASO does not have a checklist designed for facility inspections in accordance with USAD/APHIS Aviation Safety Manual 2-2.
RECOMMENDATION 1: The ASO should develop a checklist to conduct facility inspections. It should cover areas such as hangers, offices, ramp space, grounding locations, fire extinguishers, HAZMAT/MSDS, etc. in accordance with OSHA requirements.

OBSERVATION 2: The USDA/APHIS/WS Safety Manual states that Hazard Maps will be maintained in the State Safety Files (2-1.3).
RECOMMENDATION 2: The Hazard Map should be a function of the ASO and should be required for each operating location. Hazard maps should be co-located in the area where flight planning is conducted. As a recommendation, the maps should be posted in each hanger with APHIS aircraft and kept up to date on a weekly basis.

OBSERVATION 3: The USDA/APHIS/WS Safety Manual requires an Aviation Safety Committee (1-7.5).
RECOMMENDATION 3: The Safety Manual should be changed to require a Safety "Council" in lieu of the "Safety Committee" if only to be more in line with the FMR 102-33.180(f)(5) which requires a "safety council". The change should be expanded to include: safety council required members, and safety council minutes are to be printed and distributed to all APHIS/WS employees.

OBSERVATION 4: The USDA/APHIS/WS Safety Manual does contain an awards program (Section 4).
RECOMMENDATION 4: The existing awards program contained in the USDA/APHIS/WS Safety Manual should be expanded to include the GSA Federal Aviation Awards Program.

D. OPERATING PROCEDURES, MANUALS AND DIRECTIVES:

The USDA/APHIS/WS Aircraft Operations Manual (2004) is the document used by all aviation and management personnel to conduct flight operations. The manual is currently under revision and requires only minor changes to bring it up to standards required by the Federal Management Regulation, Federal Aviation Regulations, and WS Directives.

USDA/APHIS/WS State Directors and the WS also issue Directives to augment the Aircraft Operations Manual.

OBSERVATION 1: APHIS does not require employees or passengers who fly aboard APHIS/WS aircraft to sign a "Disclosure Statement" as outlined in the FMR 102-33.165 (e).
RECOMMENDATION 1: APHIS/WS should adopt the Disclosure Statement as outlined in the FMR 102-33.165 and modify it to meet APHIS/WS mission needs. All APHIS/WS employees (flight personnel) and any person that flies on an APHIS/WS aircraft should be required to sign the Disclosure Statement. APHIS/WS employees should sign the statement when hired, and each year during aviation related training.

OBSERVATION 2: WS Directive 2.620, WS Aviation Safety and Operations is dated 12/04/06. The Aircraft Operations Manual was last updated on 05/11/04.
RECOMMENDATION 2: The Aircraft Operations Manual needs to be updated to incorporate changes contained in the WS Directive as well as other procedural changes that have been implemented and are being practiced by managers and pilots. This will bring it up to standards required by the FMR, FAR, and WS Directive.

E. OPERATIONS RECORDS:

The pilots training and certification records are being maintained in several locations within USDA/APHIS/WS. From interviews and discussions, the records appear to be maintained IAW the FMR and FAR. Flight time records being maintained appear to be accurate and complete.

OBSERVATION 1: Pilot training and certification records are being maintained in several locations including the pilots base of operations, ATOC, and Ft. Collins, CO.
RECOMMENDATION 1: All pilot training and certification records should be maintained in a central repository at the ATOC. This would enable aviation management to monitor all pilot training and certification requirements and ensure they were being accomplished IAW the FMR and FAR. This information could then be shared with Region and State Directors and other management organizations as appropriate.

F. FLIGHT OPERATIONS:

The USDA/APHIS/WS flight operations are highly decentralized and located in rural areas close to the areas in which they conduct their flight operations. This wide dispersal of flight operations was not conducive to practical observations by the ARMS teams. However, on ARMS team member was able to observe the flight operations of a contract operator in Oral Rabies Vaccination operations being conducted in Junction, Texas, on January 17, 2008. Interviews and reviews of manuals and WS Directives lead the ARMS team to a good understanding of how flight operations are being conducted.

OBESERVATION 1: Pilot records (except training records) were not reviewed. They are not maintained at the ATOC but reside with the individual State Directors (SD). The Aviation Operation Manual (B-1.2) describes in detail what documents must be in the pilot's record, to include WS Form 135-5. This requirement for the contents of a pilot record mirrors that industry standard established by 14 CFR Part 135.
RECOMMENDATION 1: Pilot Records should be centrally located to provide assurance of completeness and standardization. This will provide management and personnel officials with quick access to necessary and required pilot information. It would no longer be necessary for management to go hunting for required information. This would not preclude the SD from keeping appropriate copies of the documents at his location.

G. MAINTENANCE MANAGEMENT:

It is the opinion of the ARMS Team that the USDA/APHIS/WS aviation maintenance program is operating in a safe manner.

The USDA/APHIS/WS maintenance management is addressed in the Aviation Operations Manual in a disjointed manner. There is no designated chapter in the Aviation Operations Manual that addresses maintenance procedures and no 'stand alone' General Maintenance Manual. However, all USDA/APHIS/WS aircraft are required to have "a valid FAA Airworthiness Certificate" in accordance with the Aviation Operations Manual, Section B. It is assumed that every USDA/APHIS/WS aircraft falls under a manufacturer's maintenance program, which includes FAA oversight. The ARMS Team reviewed the USDA/APHIS/WS existing maintenance procedures and documents, applicable Title 14 Code of Federal Regulations (CFR), Federal Aviation Regulations (FAR), FAA Type Certificate Data Sheets (TCDS), and FAA Advisory Circular (AC) 00.1-1 Public Aircraft Operations, for the basis of determining the effectiveness and regulatory compliance of USDA/APHIS/WS maintenance management. The survey included personal interviews with key USDA/APHIS/WS maintenance personnel and contractors.

The USDA/APHIS/WS requires all USDA/APHIS/WS aircraft to be certified, maintained, and operated in accordance with all pertinent regulations and

guidelines set forth by AOC, FAA, ICAO, DOD, and Aircraft Manufacturers to the fullest extent practical. FAR Part 91 has been established as the minimum standard for maintenance and inspection of USDA/APHIS/WS aircraft.

It appears that there is limited communication between the State Director, National Aviation Coordinator (NAC),and field personnel on the airworthiness status of aircraft operated by the USDA/APHIS/WS. It is also difficult to determine who has the oversight responsible for tracking aircraft times and scheduled inspections.

OBSERVATION 1: It appears that there is limited communication between the State Director (SD) and National Aviation Manager (NAM) / Coordinator on issues of managing the aviation program.
RECOMMENDATION 1: For continuity, the NAM should have all oversight responsibilities for the aviation programs as stated in the Aviation Operations Manual.

OBSERVATION 2: Pilot in Command (PIC) has total control of the operation of the aircraft and making the determination of its airworthiness status. The NAC does not have access to the aircraft maintenance records or control of reviewing the aircraft times of operation in order to schedule inspections. The PIC schedules all inspections.
RECOMMENDATION 2: PIC's should provide the aircraft times of operation on a weekly basis to the NAC. This will allow the NAC to know the airworthiness status of all aircraft and help schedule inspections and maintenance in a timely manner. This will also allow maintenance to be scheduled from a centralized location. (See Observation 3/Recommendation 3 under A. Management and Administration for a discussion regarding Management Information System).

OBSERVATION 3: Review of the USDA/APHIS/WS Aviation Operations Manual procedures indicates that (Maintenance, Sections B, C & J) are not current with agency guidelines and Federal Aviation Regulations (FAR).
RECOMMENDATION 3: Revise Aviation Operations Manual Sections B, C, & J to reflect current guidelines/policy of USDA/APHIS/WS operations.

OBSERVATION 4: Maintenance contractors are not audited on a regular scheduled basis to ensure that they are in compliance with USDA/APHIS/WS guidelines, requirements, and applicable FAR's.
RECOMMENDATION 4: Audit maintenance contractors on an annual basis to ensure quality of maintenance is being performed on agency aircraft, USDA/APHIS/WS guidelines, requirements, and FAR's are complied with. Develop an audit checklist to ensure standardization.

OBSERVATION 5: Aircraft in hangar were not grounded to a grounded wire. There were no fire extinguishers in the aircraft storage hangar.
RECOMMENDATION 5: Install grounding wires to ground aircraft and install fire extinguishers to comply with OSHA regulations.

OBSERVATION 6: Aircraft maintenance may be provided in as many as 38 different locations.
RECOMMENDATION 6: Aircraft maintenance providers should be limited to no more than 3 or 4 locations. This will enhance standardization throughout the aviation program and reduce the number of audits of maintenance providers.

H. REFUELING FACILITIES AND OPERATIONS:

The USDA/APHIS/WS normally conducts in-house refueling services. There are procedures in the USDA/APHIS/WS Aircraft Operations Manual under Section B-Flight Operations, B-9 Aircraft Refueling Procedures. Overall, aircraft refueling appears to be conducted in a safe manner with sufficient procedures in place as outlined in the Operations manual.

OBSERVATION 1: The refueling procedures are addressed in the Operations Manual.
RECOMMENDATION 1: None

I. AVIATION LIFE SUPPORT EQUIPMENT (ALSE):

There is no formal USDA/APHIS/WS "ALSE Program" in place. However, ALSE is worn by each USDA/APHIS/WS pilot. Each pilot wears a helmet, nomex flight suit, nomex gloves, and leather boots. In addition, each aircraft carries an Emergency Locator Transmitter (ELT) and a survival kit. The ALSE equipment is distributed by APHIS/WS personnel and inspected on an annual basis as per the Aviation Operations Manual Section B-15.3.3. Any equipment that requires repair or replacement is done so at that time.

OBSERVATION 1: There is no official "ALSE Manager" assigned that is responsible for ALSE equipment. Mr. Scott Jensen is responsible for the distribution and inspection of ALSE equipment. Any items requiring repair must be sent to the manufacturer/vendor.
RECOMMENDATION 1: APHIS should formalize the ALSE Program and designate an "ALSE Manager" who would be responsible for the ordering, tracking, distribution, inspection, and repair (or return to manufacturer) of ALSE equipment. This "ALSE Manager" would also be responsible for the evaluation of ALSE equipment and for developing policy for the use of ALSE equipment by APHIS/WS flight crew and personnel.

J. PHYSICAL SECURITY:

The USDA/APHIS/WS addresses physical security in Directive 1650.2 (2/28/06) the APHIS Aviation Security Program. This directive directs USDA/APHIS/WS personnel to conduct risk analysis for each mission as well as security procedures for aircraft, personnel, and facilities. The security program is a function of the USDA. It is the USDA that conducts security reviews and issues security policy for each USDA operation. The Directive states that the Director, Employee Services Division (ESD) is responsible for the functional management and leadership of the

APHIS Aviation Security Program and the APHIS Aviation Security Officer is responsible for APHIS employees, aircraft, and facilities. The ATOC facility in Cedar City is equipped with video monitors, and key control management policies and processes. Personnel are briefed and trained in USDA security requirements.

Overall, the USDA security program is operating in an effective manner and is compliance with FMR 102-33.

OBSERVATION 1: The ATOC facility in Cedar City does not have an assigned security manager in accordance with USDA Directive 1650.2.
RECOMMENDATION 1: APHIS should appoint an Aviation Security Officer in order to comply with USDA Directive 1650.2.

K. AVIATION ACCIDENT RESPONSE PLAN:

The USDA/APHIS/WS has aviation accident response plans (pre-accident plan) for each state program and the USDA apparently has an overarching aviation accident response plan that appears to meet requirements of the Emergency Response Plan that follows the procedures as suggested by the National Transportation Safety Board in the NTSB Federal Plan for Aviation Accidents Involving Aircraft Operated by or Charted by Federal Agencies (NTSB Plan). The "state" pre-accident plans were reviewed by the ARMS Team. The USDA plan was not.
OBSERVATION 1: Wildlife Services (WS) does not have an Accident Response plan that fully meets the requirements of the Emergency Response Plan as required by FMR 102-33.185(b). WS relies on the USDA to fulfill the requirements of the NTSB requirements that go beyond (state) pre-accident plans.
RECOMMENDATION 1: WS should continue to develop its internal Emergency Response Plan (draft) and incorporate it into the Safety Manual, and into the USDA overarching emergency response plan.

L. GOLD STANDARD VERIFICATION:

The USDA/APHIS/WS meets the requirements of the ICAP Gold Standard Certificate program.

OBSERVATION 1: USDA/APHIS/WS meets the requirements of the Gold Standard Certificate.
RECOMMENDATION 1: USDA/APHIS/WS should apply for the Gold Standard Certificate soon as possible.

INTERAGENCY COMMITTEE FOR AVIATION POLICY

AVIATION RESOURCE MANAGEMENT SURVEY TEAM

ARMS REPORT
FACTUAL

OF THE
U.S. Department of Agriculture
Animal Plant Heath Inspection Services/Wildlife Services

CONDUCTED
January 17-26, 2008

DATED
February 15, 2008

PREPARED BY:

ARMS Team Leader
Mr. Christopher Keyes
Federal Aviation Administration (FAA)

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ARMS Team Member
Mr. Tony Butcher
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TABLE OF CONTENTS

I. OVERVIEW

A. INITIAL MEETING(S)

The ICAP was requested by the U.S. Department of Agriculture (USDA) Animal Plant Health Inspection Services (APHIS) to conduct an ARMS through a formal letter signed by Mr. William Clay, Deputy Administrator of Wildlife Services dated July 2, 2007.

Numerous telephone calls and emails with Mr. Jacob Wimmer and Mr. Michael Worthern of APHIS were used to coordinate and finalize the ARMS Team members, establish the dates the ARMS Team would travel to the various APHIS locations in Utah and Texas and establish the areas in the checklist that would be surveyed by the ARMS Team as requested by USDA/APHIS/WS.

B. TEAM MEMBERS

The ARMS Team consisted of the following individuals:

ARMS Team Leader
Mr. Christopher Keyes
Federal Aviation Administration (FAA)

ARMS Team Member
Mr. Mike Miles
General Services Administration (GSA)

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A formal out-briefing was conducted at the USDA/APHIS/WS Aviation Operations Training Center at Cedar City, Utah Friday, January 26, 2008, for key USDA/APHIS/WS
personnel. The members of the ARMS Team briefed their respective areas and fielded questions from those present.

The purpose of an out-briefing is to allow all persons impacted by the survey the opportunity to question the team as a whole and individually. As stated earlier, the survey comments (Observations and Recommendations) are opinions of the ARMS Team members based on observations and interviews with agency employees. Once the out-brief is accomplished, the survey report is finalized and submitted to USDA/APHIS/WS. The ARMS Team has no further interest in the ARMS Report once it is completed. If the opportunity for rebuttal is not taken during the out-brief the report cannot be easily altered.

The ARMS Report is for the exclusive use of USDA/APHIS/WS that must consider if implementation of recommendations is appropriate. The ARMS Report is not an Inspector General type report. Comments, justifications, rebuttals or specifics to the report are not required or necessary.

Present at the outbriefing were:

Mr. Christopher Keyes, FAA, ARMS Team Leader
Mr. Mike Miles, ARMS Team, GSA
Mr. Standley Cobb, ARMS Team, FAA
Mr. Tony Butcher, ARMS Team, GSA
Mr. Jacob Wimmer, APHIS
Mr. Lloyd Burraston, APHIS
Mr. John Eisemann, USDA [via telecom]

II. EXECUTIVE SUMMARY

The USDA/APHIS/WS operates in accordance with applicable Federal Aviation Regulations (Part 91, Part 43, etc.), Public Law, and the Code of Federal Management Regulations (FMR 102-33) that pertain to a Federal agency aviation operation. There are USDA/APHIS/WS program manuals, policies, and procedures in place designed to effectively manage the organization. It is the opinion of the ARMS Team that the USDA/APHIS/WS aviation program is being operated in a safe, efficient, and effective manner.

As background, the US Department of Agriculture Animal Plant Health Inspection Services Wildlife Services (USDA/APHIS/WS) is a multi-faceted agency with a broad mission area that includes administering the Animal Welfare Act and carrying out wildlife damage management activities. One way the USDA/APHIS/WS accomplishes these responsibilities is through the use of aircraft.

The USDA/APHIS/WS aviation program provides capable, mission-ready aircraft and professional crews trained to conduct the USDA/APHIS/WS mission wherever and whenever required. Some of the aviation missions the USDA/APHIS/WS carries out include animal eradication, bird surveys, mammal survey, delivery of oral rabies vaccines, predator control, and training. USDA/APHIS/WS conducts these missions by using helicopters and fixed wing aircraft. The USDA/APHIS/WS operates in 28 states using 74 agency owned, contactor owned and operated, and "exclusive use" leasing aircraft. The USDA/APHIS/WS flight crews are required to conduct missions that include demanding flight regimes. The central USDA/APHIS/WS training facility is located in Cedar City, Utah and this center supports the USDA/APHIS/WS operations in each state.

The following is a general summary of the USDA/APHIS/WS operations that the ARMS Team evaluated during the survey.

A. MANAGEMENT AND ADMINISTRATION:

It is the opinion of the ARMS team that USDA/APHIS/WS has an appropriately defined organizational structure in place that is staffed with trained, qualified and experienced personnel. It is clear that USDA/APHIS/WS has put significant effort into establishing an aviation management structure that conforms to the requirements contained in FMR 102-33.

During the course of the evaluation, ARMS members interviewed numerous management, support, and administrative personnel. The interviews regarding management were positive. Overall morale of the staff seems good.

The system seems to be working well for USDA/APHIS/WS. Managers felt they had appropriate input into the planning and budget process. All felt their program needs were being met. All managers and supervisors with budget responsibility were especially happy with their autonomy in dealing with their budgets, programs and challenges. A high degree of team effort was noted between the various program

managers in dealing with budget issues and needs. USDA/APHIS/WS appears to be proactive in its fleet planning with an active and recurring effort to review and evaluate its mission and program.

Overall, indications are that management enjoys the confidence and support of the employees.

B. TRAINING:

USDA/APHIS/WS has an established flight training program. The majority of the initial and recurrent training is conducted at the Aviation Training Operations Center (ATOC) located in Cedar City, Utah. The training facility is staffed with a minimum of qualified personnel to accomplish the training mission. The Aviation Training and Operations Center (ATOC) manager has developed an effective training curriculum using a set of manuals, simulators and training devises that provide outstanding quality training that is geared to the specific tasks of the WS pilot and crewmember. The training promotes safety through standardization. Training records are maintained at the ATOC facility both hard copy and electronically. A review of the records indicates that they are well maintained, accurate and complete. All personnel interviewed indicated that the training has improved dramatically over the past few years and gave it high marks for effectiveness, timeliness, and applicability. The training operation is considered to be outstanding.

C. SAFETY MANAGEMENT/ADMINISTRATION:

The USDA/APHIS/WS aviation safety program is detailed in the USDA/APHIS/WS/Wildlife Services-Aviation Safety Manual. The USDA/APHIS/WS Aviation Safety Officer (ASO), Mr. Jacob Wimmer, manages the aviation safety program. Mr. Wimmer is a school trained (US Army) aviation safety officer. The aviation safety program meets all requirements of the FMR 102-33 180 thru .185.as well as FMR 102-33.445 and .450. It is operating in an effective manner with all required elements required of a successful aviation safety program.

D. OPERATING PROCEDURES, MANUALS AND DIRECTIVES:

The USDA/APHIS/WS Aircraft Operations Manual (2004) is the document used by all aviation and management personnel to conduct flight operations. The manual is currently under revision and requires only minor changes to bring it up to standards required by the Federal Management Regulation, Federal Aviation Regulations, and WS Directives.

USDA/APHIS/WS State Directors also issue State Directives to augment the Aircraft Operations Manual.

E. OPERATIONS RECORDS:

The pilots training and certification records are being maintained in several locations within USDA/APHIS/WS. From interviews and discussions, the records appear to be maintained IAW the FMR and FAR. Flight time records being maintained appear to be accurate and complete.

F. FLIGHT OPERATIONS

The USDA/APHIS/WS flight operations are highly decentralized and located in rural areas close to the areas in which they conduct their flight operations. This wide dispersal of flight operations was not conducive to practical observations by the ARMS teams. However, one ARMS team member was able to observe the flight operations of a contract operator in Oral Rabies Vaccination operations being conducted in Junction, Texas, on January 17, 2008. Interviews and reviews of manuals and WS Directives lead the ARMS team to a good understanding of how flight operations are being conducted.

G. MAINTENANCE MANAGEMENT:

The USDA/APHIS/WS maintenance management is addressed in the Aviation Operations Manual in a disjointed manner. There is no designated chapter in the Aviation Operations Manual that addresses maintenance procedures and no 'stand alone' General Maintenance Manual. However, all USDA/APHIS/WS aircraft are required to have "a valid FAA Airworthiness Certificate" in accordance with the Aviation Operations Manual, Section B. It is assumed that every USDA/APHIS/WS aircraft falls under a manufacturer's maintenance program, which includes FAA oversight. The ARMS Team reviewed the USDA/APHIS/WS existing maintenance procedures and documents, applicable Title 14 Code of Federal Regulations (CFR), Federal Aviation Regulations (FAR), FAA Type Certificate Data Sheets (TCDS), and FAA Advisory Circular (AC) 00.1-1 Public Aircraft Operations, for the basis of determining the effectiveness and regulatory compliance of USDA/APHIS/WS maintenance management. The survey included personal interviews with key USDA/APHIS/WS maintenance personnel and contractors.

The USDA/APHIS/WS requires all USDA/APHIS/WS aircraft to be certified, maintained, and operated in accordance with all pertinent regulations and guidelines set forth by AOC, FAA, ICAO, DOD, and Aircraft Manufacturers to the fullest extent practical. FAR Part 91 has been established as the minimum standard for maintenance and inspection of USDA/APHIS/WS aircraft.

It appears that there is limited communication between the State Director, National Aviation Coordinator and field personnel on the airworthiness status of aircraft operated by the Agency. It is also difficult to determine who has the oversight responsible for tracking aircraft times and scheduled inspections.

It is the opinion of the ARMS Team that the USDA/APHIS/WS aviation maintenance program is operating in a safe manner.

H. REFUELING FACILITIES AND OPERATIONS:

The USDA/APHIS/WS normally conducts in-house refueling services. There are procedures in the Aircraft Operations Manual under Section B-Flight Operations, B-9 Aircraft Refueling Procedures. Overall, aircraft refueling appears to be conducted in a safe manner with sufficient procedures in place as outlined in the operations manual.

I. AVIATION LIFE SUPPORT EQUIPMENT (ALSE):

There is no formal USDA/APHIS/WS "ALSE Program" in place. However, ALSE is worn by each USDA/APHIS/WS pilot. Each pilot wears as a minimum, a helmet, nomex flight suit, nomex gloves, and leather boots. In addition, each aircraft carries an Emergency Locator Transmitter (ELT) and a survival kit. The ALSE equipment is stored in a central location, distributed by APHIS personnel, and inspected on an annual basis as per the Aviation Operations Manual Section B-15.3.3. Any equipment that requires repair or replacement is done so at that time.

J. PHYSICAL SECURITY:

The USDA/APHIS/WS addresses physical security in Directive 1650.2 (2/28/06) the APHIS Aviation Security Program. This directive directs USDA/APHIS/WS personnel to conduct risk analysis for each mission as well as security procedures for aircraft, personnel, and facilities. The security program is a function of the USDA. It is the USDA that conducts security reviews and issues security policy for each USDA operation. The Directive states that the Director, Employee Services Division (ESD) is responsible for the functional management and leadership of the APHIS Aviation Security Program and the APHIS Aviation Security Officer is responsible for APHIS employees, aircraft, and facilities. The ATOC facility in Cedar City is equipped with video monitors, key control, and the personnel are briefed and trained in USDA security requirements.

Overall, the USDA security program is operating in an effective manner and is in compliance with FMR 102-33.

K. AVIATION ACCIDENT RESPONSE PLAN:

The USDA/APHIS/WS has aviation accident response plans for each state program and the USDA has a aviation accident response plan that appears to meet the requirements of the Emergency Response Plan that follows the procedures as suggested by the National Transportation Safety Board in the NTSB Federal Plan for Aviation Accidents Involving Aircraft Operated by or Charted by Federal Agencies (NTSB Plan).

L. GOLD STANDARD VERIFICATION:

The USDA/APHIS/WS meets the requirements of the ICAP Gold Standard Certificate program.

Listing of all Aviation Reviewer Recommendations

Directives, Manuals and Operating Procedures (DMP)

1 APHIS/WS should adopt the Disclosure Statement as outlined in the FMR 102-33.165 and modify it to meet APHIS/WS mission needs. All APHIS/WS employees (flight personnel) and any person that flies on an APHIS/WS aircraft should be required to sign the Disclosure Statement. APHIS/WS employees should sign the statement when hired, and each year during aviation related training.

2 The Aircraft Operations Manual needs to be updated to incorporate changes contained in the WS Directive as well as other procedural changes that have been implemented and are being practiced by managers and pilots. This will bring it up to standards required by the FMR, FAR, and WS Directive.

3 WS should continue to develop its internal Emergency Response Plan (draft) and incorporate it into the Safety Manual, and into the USDA overarching emergency response plan.

4 The Safety Manual should be changed to require a Safety "Council" in lieu of the "Safety Committee" if only to be more in line with the FMR 102-33.180(f)(5) which requires a "safety council". The change should be expanded to include: safety council required members, and safety council minutes are to be printed and distributed to all APHIS/WS employees.

5 Revise Aviation Operations Manual Sections B, C, & J to reflect current guidelines/policy of USDA/APHIS/WS operations.

Management and Administration (MA)

1 The National Aviation Coordinator (NAC) should be a qualified aviator. Federal Aviation Regulations (14 CFR Part 119) require that an individual in that position be a current line pilot in at least one aircraft that the operator operates.

2 Budget authority and management should have clear lines of authority. The NAC should have a dedicated budget analyst that reports directly to him/her to ensure the program is supported in an efficient and effective manor.

3 To ensure the highest level of safety for the USDA/APHIS/WS employees that must fly on contracted aircraft, it is incumbent upon the NAC, ATOC, Safety Officer, and Aviation Safety Inspector- Airworthiness, to provide the ER SD's with appropriate support and oversight to the maximum extent possible. This support should take the form of on-site observations of the contractors operations and well as the document reviews, which they now conduct. Upper management should support the necessity for these key individuals to expand their current level of support/oversight of ER flight operations.

4 APHIS should develop a planning document that outlines a budget and timetable for the purchase/replacement of aircraft. The plan should consider the cost of operating older aircraft versus newer aircraft as well as determining the appropriateness of a particular aircraft type for the terrain that it is to operate in. Aircraft that are identified as 'scheduled for replacement' should be considered as candidates for the General Services Administration's 'exchange/sale'

program. Older aircraft could be sold and the monies received could be used to purchase newer aircraft for the APHIS fleet.

5 The Aviation Safety Officer (ASO) should develop a checklist to conduct facility inspections. It should cover areas such as hangers, offices, ramp space, grounding locations, fire extinguishers, HAZMAT/MSDS, etc. in accordance with OSHA requirements.

6 The Hazard Map should be a function of the ASO and should be required for each operating location. Hazard maps should be co-located in the area where flight planning is conducted. As a recommendation, the maps should be posted in each hanger with APHIS aircraft and kept up to date on a weekly basis.

7 APHIS should appoint an Aviation Security Officer in order to comply with USDA Directive 1650.2.

8 For continuity, the NAM should have all oversight responsibilities for the aviation programs as stated in the Aviation Operations Manual.

9 Pilot in Command provide the aircraft times of operation on a weekly basis to the NAC.

10 USDA/APHIS/WS should apply for the Gold Standard Certificate soon as possible.

Training Program (TP)

1 Upper management should continue to support the training program with necessary financial and human resources that might be required for the ATOC to continue providing outstanding and effective training.

2 The ATOC should develop a policy addressing how unsatisfactory ("U") item(s) on a check flight (pilot evaluation flight) will be processed. The process should be included in the Aviation Operations Handbook which will become policy as it is signed by the Deputy Administrator. This is a standard policy in the air carrier industry.

3 Serious consideration should be given to the addition of another full time Certified Flight Instructor (CFI) to the Cedar City training facility staff. (same as SS-1)

4 For each course of training the ATOC should add a "Completion Standard". This would bring the training curriculums up to industry standards (14 CFR Part 141).

5 When contractors are scheduled to attend training they should be paid a salary in addition to the travel and per diem that is now given.

Additional Safety Staff (SS)

1 (*While not directly related to safety staff, the following comment would serve to increase aviation safety*.) Serious consideration should be given to the addition of another full time Certified Flight Instructor (CFI) to the Cedar City training facility staff. (same as TP-3)

Equipment, Facilities and Maintenance (EFM)

1 Audit maintenance contractors on an annual basis to ensure quality of maintenance is being performed on agency aircraft, USDA/APHIS/WS

guidelines, requirements, and FAR's are complied with. Develop an audit checklist to ensure standardization.

2 Install grounding wires to ground aircraft and install fire extinguishers to comply with OSHA regulations.

3 APHIS should formalize the Aviation Life Support Equipment (ALSE) Program and designate an "ALSE Manager" who would be responsible for the ordering, tracking, distribution, inspection, and repair (or return to manufacturer) of ALSE equipment. This "ALSE Manager" would also be responsible for the evaluation of ALSE equipment and for developing policy for the use of ALSE equipment by APHIS/WS flight crew and personnel.

4 Aircraft maintenance providers should be limited to no more than 3 or 4 locations.

Databases and Tracking Systems (DB)

1 APHIS should put together a working group consisting of representatives from all parties within APHIS that need information from pilots at the conclusion of a flight. The goal of the working group would be to identify all information that needs to be captured. This would include operational information, flight and crew information, information for invoicing purposes, and maintenance information. A standard form could be added to the MIS program that a pilot would complete and enter at the completion of a flight. The reporting interval should also be standardized and made a pilot in command requirement. Reporting in a manner such as this is the standard for most government operations as well as civilian operations.

2 Pilot Records should be centrally located to provide assurance of completeness and standardization.

3 All pilot training and certification records should be maintained in a central repository at the Aviation Training and Operations Center.

Culture (C)

1 The existing awards program contained in the USDA/APHIS/WS Safety Manual should be expanded to include the GSA Federal Aviation Awards Program.

Explosives and Pyrotechnics Safety Report

Safety Review of USDA APHIS Wildlife Services' Use of Explosives and Pyrotechnics

by

Institute of Makers of Explosives

May 9, 2008

1

EXECUTIVE SUMMARY

The Institute of Makers of Explosives (IME) conducted a safety and security review of WS use of explosives and pyrotechnics. Wildlife Services (WS) has an outstanding explosives and pyrotechnics safety and security program and fosters a culture, from top to bottom, that promotes safety. The WS explosives and pyrotechnics safety and security program could serve as a model for other agencies or groups looking to improve their own program. The recommendations made by IME the report address relatively minor safety and security issues. They should in no way reflect poorly on WS employees. Only through IME's intimate knowledge and experience of commercial explosives and blasting could these recommendations be known.

The IME reviewed 6 WS Directives and 36 documents used for safety and security training by WS. In general, WS documentation was well written and covered the essential topics. IME suggested many minor modifications to the documentation that WS should consider making.

No training classes were held during the review period so IME was not able to attend a training class(es). WS training instructors are highly skilled and experienced safety professionals and WS training documents are outstanding. IME has no doubts that the WS training and certification programs could serve as a model for other agencies.

IME conducted four separate field audits of state WS explosives programs involving six field offices. Each auditor prepared a field audit report which was reviewed by IME. Each auditor was very impressed with the emphasis WS places on safety and in particular, explosives safety and security. Field audits included a review of the availability of relevant safety information and equipment, employee knowledge of and adherence to safety policies, use of Personal Protective Equipment, on-site hazard communication rules, transportation, handling and storage of hazardous materials, and equipment condition. No major deficiencies were observed in any of these areas, although several of the recommendations made by IME address minor issues in these areas. The recommendations were prioritized by IME.

INTRODUCTION

The Institute of Makers of Explosives (IME) conducted a safety and security review of WS use of explosives and pyrotechnics.

The IME has been the safety and security institute of the commercial explosives industry since 1913. Our mission is to promote safety and the protection of employees, users, the public and the environment; and to encourage the adoption of uniform rules and regulations in the manufacture, transportation, storage, handling, use and disposal of explosive materials used in blasting and other essential operations.

The IME represents U.S. manufacturers and distributors of commercial explosive materials and oxidizers as well as other companies that provide related services. Over 3 million metric tons of high explosives, blasting agents, and oxidizers are consumed annually in the United States. Of this, IME member companies produce over 98 percent of the high explosives and a great majority of the blasting agents and oxidizers. These products are used in every state of the Union and are distributed worldwide. IME members and their affiliates conduct over half of all blasts in the U.S.

Commercial explosives are the backbone of our industrial society. Metals, minerals, oil, power, construction activities and supplies, and consumer products are available today because of commercial explosives. The ability to transport and distribute commercial explosives safely and securely is critical to all industries.

As such, explosives and pyrotechnics provide valuable tools to Wildlife Services (WS). Appropriate application of these tools improves the safety and efficiency of WS operations. WS should continue to use explosives and pyrotechnics and could increase their use. State Directors who choose not to use these tools should be reminded annually of the potential benefits.

WS' need for the use of explosives and pyrotechnics will likely increase in coming years due primarily to increased use of capture nets for surveillance of avian influenza and other wildlife diseases, increased beaver dam blasting due to a burgeoning native beaver population, increased need to control avian hazards to aircraft due to increasing air traffic and continued emphasis on nonlethal management options.

WS has an outstanding explosives and pyrotechnics safety and security program and fosters a culture, from top to bottom, that promotes safety. The WS explosives and pyrotechnics safety and security program could serve as a model for other agencies or groups looking to improve their own program. The recommendations that IME make in this report address relatively minor safety and security issues. They should in no way reflect poorly on WS employees. Only through IME's intimate knowledge and experience of commercial explosives and blasting could these recommendations be known.

REVIEW OF APPLICABLE DIRECTIVES

The IME Technical Committee (Tech)[1] reviewed the following applicable directives and referenced documents related to the WS explosives and pyrotechnics safety and security program:

- WS Directive 2.401, PESTICIDE USE, dated 02/17/04
- WS Directive 2.435, EXPLOSIVES USE AND SAFETY, dated 01/06/06
- WS Directive 2.465, ACCOUNTABILITY AND OVERSIGHT OF HAZARDOUS MATERIALS, dated 11/23/04
- WS Directive 2.601, SAFETY, dated 10/07/05
- WS Directive 2.625, PYROTECHNICS, ROCKET NET CHARGES, AND INCIDENTAL EXPLOSIVE MATERIALS, dated 01/06/06
- APHIS SAFETY INSPECTION CHECKLIST (Hazardous Chemical Storage, Explosives Storage, and Waste Disposal), APHIS FORM 256-5 (June 97)

Tech reviewed the documents for their adequacy, certification requirements, and completeness.

IME found no deficiencies in WS Directives 2.401, 2.465, 2.601 and makes no recommendations for changes in these directives.

[1] Tech is comprised of 45 of the best technical people in IME member companies.

WS Directive 2.435, EXPLOSIVES USE AND SAFETY

WS should make the following modifications to this directive:

1. Add a paragraph to section four addressing the explosives possession prohibitions from the Safe Explosives Act. Federal Law prohibits the possession of explosives by certain individuals. WS should ensure that employees are aware of these prohibitions and take action to prohibit possession of explosives by prohibited individuals.
2. The web address (http://www.aphis.usda.gov/mrpbs/forms/aphis/aphis256-5.pdf) listed in section four does not work and should be updated.
3. Add a reference to Department of Transportation regulations at 49 CFR Parts 106, 107, 110, 171 through 180, and 397 in section five.
4. Eliminate and expand certain references to 27 CFR Part 555. Subpart D does not apply to any WS activity and can be deleted. All of Subpart G could be referenced, not just 555.126 and 127. All of Subparts I, J and K should be referenced.

WS Directive 2.625, PYROTECHNICS, ROCKET NET CHARGES, AND INCIDENTAL EXPLOSIVE MATERIALS

WS should make the following modifications to this directive:

1. Add a paragraph to section four addressing the explosives possession prohibitions from the Safe Explosives Act. Federal Law prohibits the possession of explosives by certain individuals. WS should ensure that employees are aware of these prohibitions and take action to prohibit possession of explosives by prohibited individuals.
2. The references in section five should be consistent with WS Directive 2.435 for 49 CFR and 27 CFR.
3. Delete the phrase "and approved as legal explosive devices by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)" from section I of Attachment 1. ATF does not engage in such approvals.
4. Delete the phrase "exceeds these standards and" from section IA, Rule 3b. An IME 22 container does not necessarily meet the bullet or theft resistant requirements of a Type 2 magazine, or the theft resistance of a Type 4 magazine.
5. Mention the OSHA requirement for indoor magazines being readily removable from the building in the event of an emergency in Section IA, Rule 3b.
6. Replace "small cardboard boxes" with "original packaging" in Section IA, Rule 4.
7. Add a rule for informing the local jurisdiction responsible for fire safety of explosives and pyrotechnics storage in magazines.
8. In Section V, delete "site" from the first sentence. Each magazine should be inspected, not just the site.

APHIS SAFETY INSPECTION CHECKLIST (Hazardous Chemical Storage, Explosives Storage, and Waste Disposal), APHIS FORM 256-5 (June 97)

WS should consider the following modifications to this directive:

1. Insert "at least" before "once" in question #39.

REVIEW SAFETY MANUALS AND PROCEDURES FOR EXPLOSIVES, ROCKET/CANNON NETS AND PYROTECHNICS

The IME Technical Committee (Tech) reviewed the following applicable safety manuals, procedures and referenced documents related to the WS explosives and pyrotechnics safety and security program:

Use Restrictions for the Use of Fuse Detonators by Wildlife Services Explosives Specialists, May 2007

IME recommends no changes.

Wildlife Services Explosives Training Workshop, What-to-bring List

Consider eliminating the reference to a "nonsparking" knife. It is not a well-defined term.

Rocket/Cannon Net Workshop Agenda, June 26-27, 2007, Mississippi State University

IME recommends no changes.

Standard Operating Procedures For Rocket and Cannon-net Use, August 8, 2006

1. The terms "should" and "will" are used apparently interchangeably in the document. WS should consider whether both terms should be used and if not which one should be used. If both terms are used, WS should be able to justify why one term is used in one place and the other is used in another place.

2. Edit section III.A.8 as follows: "Smoking, matches, open flame, and spark-producing devices are not permitted within 50 feet of outdoor explosives magazines or in the same room as indoor magazines. Combustible materials and flammable liquids will not be stored within 50 feet of outdoor magazines. The land surrounding an outdoor magazine will be kept clear of all combustible materials for a distance of at least 25 feet."

3. Revise Section IV in accordance with the resolution of the IME recommendation number one on use of SLP-22 boxes.

4. Refer to IME SLP-20 in section VIII.1 for control of radio frequency hazards.

5. Add "NET OPERATOR-IN-CHARGE looks for a misfire, gives the all clear, or goes to XI." as the first step in section X.

APHIS Safety Inspection Checklist, WS form 256-5 (June 97)

IME recommends no changes.

Explosives Inventory Record, WS form 22 (Oct 99)

IME recommends no changes.

Site Blasting Record, WS form 23 (Sept 98)

IME recommends no changes.

Explosives Handling Procedures for Beaver Damage Management , September 2007

1. Consider adding a definition for the "Chair of Explosive Committee."

2. In section II, part D.1, delete the phrase "quantities of more than 1,000 detonators (regardless of package classification); quantities of more than 1,000 detonators (regardless of package classification)." Quantities of over 1,000 detonators may be shipped as Division 1.4. Likewise, delete the phrase "(less than 1,000)" in D.4.

3. Edit the last sentence in section II, part D.6, to read: "Detonators packaged as Division 1.4 explosives can be stored in Type 4 magazines."

4. Consider replacing the definition of "shock tube" and "electric detonator" with that found in IME SLP-12.

5. Relabel the section titled "D. Miscellaneous" section "E".

6. Replace the phrase "blasting site" with "blast site" throughout all WS literature.

7. Add a definition for "blast area: The area of a blast within the influence of flying material, gases, and concussion." Use this term instead of "blasting area" throughout WS literature.

8. Examine font issues in the document since it looks like quotation marks are not displayed properly in either the electronic or hard copies provided.

9. Alphabetize the list of terms in section "[E]. Miscellaneous".

10. Consider replacing the definition of "shunt" with the newly revised IME definition from SLP-12:

    SHUNT (noun) - A connection between two wires of an electric detonator which prevents building up of opposing electrical potential in them.

    SHUNT (verb) - The means (or action) whereby build-up of extraneous electrical energy is prevented, diverted, current limited, or redirected in a detonator assembly to minimize the probability of an unplanned actuation of the ignition element.

11. Delete the phrase "size No. 8 or equivalent" from section IV.A.3. Strictly speaking, detonators are not tested to this standard making it essentially impossible to meet. As an alternative, WS could say "400-450 milligrams PETN base charge or equivalent."

12. Add the phrase "when the combination of the magazine and the building provide bullet resistance" to the end of section XII Rule 4b.

13. Delete Rule 9 in section XII. WS needs to prepare explosives for shipment in smaller boxes and this may be best accomplished inside the magazine.

14. Edit the first sentence in section XII, Rule 13 as follows. "Smoking, matches, open flames, and spark or flame-producing devices are not permitted inside or within 50 feet of an outdoor magazine; or in the same room as an indoor magazine.

15. Add the word "outdoor" before "magazine" in Rule 14 in section XII.

16. Make Rule 15 in section XII consistent with the resolution of IME's recommendation on magazine warning signs.

17. Consider adding rocket net charges to section XIII.

18. Revise rules 2-5 based on resolution of IME's recommendation on use of Type 3 magazines for transportation.

Wildlife Services Explosives Program Definitions (undated?)

Consider eliminating this document since it appears to be redundant with section II of Explosives Handling Procedures for Beaver Damage Management , September 2007. Duplicative standards are prone to developing inconsistencies.

Misfire Procedures Ez Det Detonator Nonelectric Shock Tube Assembly, June 2002

Remove the trade name "Ez Det" and replace it with the generic term "dual ended". "EZDet" is a registered trademark of Dyno Nobel Inc. and in places where the term word is appropriate, WS could include the registered trademark symbol (®) following the word.

Checklist for the Use of Nonelectric Shock Tube Detonators, May 2003

IME recommends no changes, except as discussed in the recommendation for covering starter caps.

Checklist for the Use of Ez Det Detonator Nonelectric Shock Tube Assembly, June 2002

Remove the trade name "Ez Det" and replace it with the generic term "dual ended". "EZDet" is a registered trademark of Dyno Nobel Inc. and in places where the term word is appropriate, WS could include the registered trademark symbol (®) following the word.

Checklist for The Use of Fuse Detonators, May 2003

IME recommends no changes, except as discussed in the recommendation for covering starter caps.

Checklist for the Use of Electric Detonators, May 2003

IME recommends no changes, except as discussed in the recommendation for covering starter caps.

Detonating Cord Checklist, May 2003

IME recommends no changes.

Step by Step Misfire Procedures Fuse Detonators, May 2003

IME recommends no changes.

Step by Step Misfire Procedures Nonelectric Shock Tube Detonators, May 2003

IME recommends no changes.

Step by Step Misfire Procedures Electric Detonators, May 2003

IME recommends no changes.

Tread Day Boxes

IME recommends no changes.

Subpart K-Storage

This is apparently intended to be a copy of ATF storage regulations. WS should provide a copy of the most recent version of ATF publication 5400.7, Federal Explosives Law and Regulations to trainees and consider eliminating this section of the Manual.

IME Lock 'em Up poster

IME recommends no changes.

Untitled

A WS form for "Transportation Inventory" and "Daily Vehicle Inspection" is in the Manual, but has no title and should be given one. IME recommends no other changes, but notes that the form is applicable to beaver dam blasting only.

IME Emergency Routing Poster

IME recommends no changes.

IME Bulk Truck Marking & Placarding Guide

IME recommends elimination of this from the Manual. It has no applicability since WS does not allow transport of explosives and oxidizers in the manner covered by the guide.

Procedures for Preparing Safety Fuse and Fuse Detonator Assemblies, No. 5A, Feb 9, 1998

Consider elimination of the document. Relevant parts should be already in or added to the Checklist for the Use of Fuse Detonators, May 2003.

Safe Practice with Nonelectric, Shock Tube Initiation System, No. 4, March 11, 1994

Eliminate this document. It does not accurately describe the phenomenon. WS should continue to emphasize the IME recommendation from SLP-4 to "NEVER pull wires, safety fuse, shock tube, coupling device, plastic tubing, or detonating cord out of any detonator or delay device."

Proper Cutting Techniques – Detonating Cord, No. 3A, Mar. 26, 1991

IME recommends no changes.

Safety Considerations Related to Explosives Inventory Stock Rotation and Disposal, No. 6, April 11, 2007

IME recommends no changes.

IME and ISEE's Guidance on Passing Through Airport Security Checkpoints for Commercial Explosive Professionals, July 2003

WS should replace this with the Feb., 2005 edition.

Voluntary Security Checklist

WS should replace this with ATF Publication 5400.15, Safety and Security Information for Federal Explosives Licensees and Permittees, March, 2007.

IME Poster on Explosive Magazine Emergency Procedures

IME recommends no changes.

Product Data Sheets and MSDS

IME recommends no changes.

Explosives Specialist Certification / Refresher Training Inspection Form (8/03)

IME recommends no changes.

Delay Detonator Use (12/5/03)

IME recommends no changes.

Explosives Training Workshop, June 26-28, 2007

IME recommends no changes.

Delayed Detonator Workshop, May 20, 2003

IME recommends no changes.

Self-Inspection Checklist Residential Storage Sites for Pesticides, Pyrotechnics, Rocket Net Charges and/or Incidental Explosive Materials

IME recommends no changes.

REVIEW TRAINING AND CERTIFICATION PROGRAMS

No training classes were held during the review period so IME was not able to attend a training class(es). IME reviewed the documentation listed above related to the training and certification programs and recommends minor edits as seen above. Outside contractors used by WS as training instructors are highly skilled and experienced safety professionals and IME has no doubts that their instruction meets WS needs. WS Explosives Committee members that serve as instructors exhibit the skills and knowledge necessary to perform this task. The WS training and certification programs could serve as a model for other agencies.

FIELD AUDITS

IME conducted four separate field audits of WS explosives programs involving six field offices. Lon Santis, IME Manager of Technical Services visited the VA field office. Steve Harris, Austin Powder Co. Western Regional Manager visited the WA and ID field offices. John Lee Turner, Orica Technical Manager for the Eastern Region visited the WI field offices in Waupun and Rhinelander. Joe Mc Donald, Senior Area Technical Representative for Dyno Nobel Inc visited the OK field office. A brief summary of each reviewer's education and background is included in Appendix A. Each reviewer prepared a field audit report which was reviewed by IME.

Each auditor was very impressed with the emphasis WS places on safety and in particular, explosives safety and security. Field inspections included a review of the availability of relevant safety information and equipment, employee knowledge of and adherence to safety policies, use of Personal Protective Equipment, on-site hazard communication rules, transportation, handling and storage of hazardous materials, and equipment condition. No major deficiencies were observed in any of these areas, although several of the recommendations made by IME address minor issues in these areas.

During the field audits, IME verified that in general:

- WS employees adhere to WS policy/manuals/safety procedures and guidelines regarding the use of explosives and pyrotechnics.
- WS makes available all the necessary personal protective equipment (PPE) and provides adequate training for its use.
- WS applies an adequate Hazard Communication Plan for hazardous materials.
- Emergency response materials are readily availability.
- WS record keeping meets ATF, DOT and industry standards.

- Periodic safety inspections are conducted adequately.
- Explosives, pyrotechnics and associated equipment were properly stored.
- Explosives and pyrotechnics were transported safety and securely.
- Explosives and pyrotechnics equipment was in good condition and maintained.
- Explosives, pyrotechnics, and associated equipment were properly labeled.
- MSDS were available for hazardous materials.
- Appropriated safety equipment was available (e.g., first aid kits, Automated External Defibrillator (AED), fire extinguisher).
- Field communications were good.

Several of the recommendations made by IME would make minor improvements in some of these areas.

STATE DIRECTOR AND DISTRICT SUPERVISOR INTERVIEWS

IME interviewed State Directors, Assistant State Directors, District Supervisors, and Assistant District Supervisors as described in the field audit reports and elsewhere.

Because of the diversity of wildlife damage management needs within each state, State Directors have a great deal of latitude in setting policy for the State office. A national safety and security program like that administered through the WS Explosives Safety Committee establishes certain national policy and is necessary for safe and secure WS operations. WS appears to have struck the proper balance between State Director independence and national policy. State Directors and their staff seem to welcome guidance from the WS Explosives Committee in these areas and understand the limitations of their own knowledge of explosives and pyrotechnics safety and security. During the interviews and in general, IME did not observe a single instance of WS field staff substituting their opinion for that of the WS Explosives Committee.

Every interviewee displayed a level of understanding of the issues to adequately administer an effective safety program. Safety incentives (e.g., awards, performance standard elements) are offered and given to WS employees. Supervisors and State Directors had through knowledge of activities and hazards associated with the use of explosives and pyrotechnics. Supervisors displayed an adequate knowledge of WS safety and security program requirements, monitored and reviewed employee field activities, provided oversight of the WS safety and security program and corrective action process, and included a safety component in employee performance standards.

REVIEW OF 2007 PYROTECHNICS ACCIDENT

IME conducted a review of the 2007 pyrotechnics accident that WS experienced in Washington State. Explosives and pyrotechnics are often unpredictable and it appears impossible to prevent a situation where a rocket, banger, screamer or pyrotechnic round goes in an unintended direction. Therefore, policies to minimize the consequences of known errant behavior were instituted. WS appears to have had adequate policies in place before the incident.

According to information provided to IME, the root primary cause of the accident was an employee's failure to follow safety policies that were provided to the employee. Corrective action in that regard is beyond the scope of IME's review.

RECOMMENDATIONS

As stated previously, the WS explosives and pyrotechnics safety and security program could serve as model for similar agencies and groups. The following recommendations are based on IME's intimate knowledge and experience with commercial explosives blasting and products and on IME's observations of the WS explosives safety program during the audit. The recommendations do not in all cases suggest additional restrictions. In some areas, IME believes that WS is overly restrictive and that safety and security would be enhanced by relaxation of certain policies.

IME used a qualitative risk assessment process to prioritize the recommendations. An estimate of the probability of an incident occurring was coupled with the expected consequences of that incident to determine the risk. The recommendations are listed from highest to lowest risk, assuming the recommendation was not instituted. The first four recommendations rated equally as did recommendations numbers 8 and 9.

1. Implement ways to limit WS employees working alone with explosives and water hazards related to beaver impoundments.

Whenever possible, WS employees should not work alone with explosives or water hazards. IME understands that many circumstances may require WS employees to work alone with explosives and water hazards, and in those circumstances, WS should have a check-in policy to ensure, at a minimum, that the employee has returned safely from a day in the field. Cooperators should be encouraged, perhaps through modification of cooperative agreements if necessary, to watch out for WS employees while working around water hazards and with explosives.

2. Improve cooperator assistance with safety.

Cooperators should provide more assistance to WS on safety. In addition to the potential assistance mentioned above, cooperators could do more in the areas of traffic control and control of ignition sources. For example, when WS employees are working near roadways, cooperators with the proper authority should control traffic rather than sit in their vehicles while traffic whizzes by at speed. It should be made very clear to cooperators that smoking and other sources of ignition are prohibited within 50 feet of explosives.

3. Involve the WS Explosives Committee in the review of all accidents involving explosives or pyrotechnics.

Any accident involving explosives or pyrotechnics should involve the WS Explosives Committee as early in the post-accident process as possible. State Directors should still have primary authority over the accident investigation and corrective action, but involvement of the WS Explosives Committee should be required. WS appears to properly investigate accidents and institute corrective action to prevent a recurrence at a local level. Involvement of the WS Explosives Committee would ensure that the

corrective action could be transferred to other applicable offices. The WS Explosives Committee would also provide valuable input to causative and preventive analysis.

4. Ensure that at least ½ FTE be devoted to the national coordination of the WS explosives and pyrotechnics safety and security program.

If an IME member company conducted the type of nationwide blasting program conducted by WS, at least 1/2 person-year would be devoted to managing the safety, security and compliance of the program from a national level.

5. Carry-over the certification process for blasters to the rocket net program.

WS has an outstanding certification program for blasters. IME believes that essentially the same type of program should be applied to the use of rocket nets. Most of the infrastructure in terms of training, guidance, and policy for this certification already exists and is of outstanding quality. The WS rocket net certification process should ensure that the net-operator-in-charge is certified and that helpers have been safety trained.

6. Consider purchasing manufactured fuse cap assemblies.

WS assembles its own fuse cap assemblies. Preassembled fuse cap assemblies are commercially available and can be more reliable.

7. Consolidate explosives storage sites and make efficient use of indoor magazines.

WS should review their explosives storage for potential consolidation or relocation of indoor magazines at the local level. Safety, security and efficiency may be increased by sensible consolidation, relocation and use of indoor magazines. For example, less road miles traveled to the magazine for products and inspections translates directly into improved employee safety and efficiency. More frequent attendance, such as storage in the State office instead of at a remote location can improve security. Each building WS has access to should be considered for use as an indoor magazine site; potentially eliminating the need for outdoor magazines. During this review, WS should evaluate the bullet resistance of indoor Type 2 magazines and compliance with 27 CFR 555.208(b)(1). The walls of an indoor Type 2 magazine may not be bullet-resistant only if the additional protection of the building, in combination with the magazine, provides bullet-resistance.

8. Purchase multi-function gas detectors for blasters that enter confined spaces such as culverts and train such blasters in confined space entry procedures.

Some WS blasters enter confined spaces such as culverts blocked by a beaver dam on the upstream end. This can create stagnant air in the culvert and the decay of organic matter in the dam may generate gases that displace oxygen and create a dangerous atmosphere. Detonation generates CO and NOx, toxic gases that might linger in the culvert. Detectors purchased should be capable of measuring oxygen, carbon monoxide, methane, and sulfur dioxide. Standard confined space entry procedures are applicable, readily available and could be adapted by the Explosives Committee to meet WS needs.

9. Provide employees with proper personal protective equipment (PPE).

For the most part, WS employees are provided the proper PPE. WS employees should wear safety glasses at all times around explosives and pyrotechnics. When handling SLP-22 or Type 3 boxes and rocket nets, WS employees should be provided and wear steel toe shoes.

10. Modify training or checklists to include the following elements.

    a. Control starter cap shrapnel with shock tube systems

WS typically uses detonators designed for initiation of high explosive charges (so called in-hole or standard or high strength detonators) attached to a lead in line or fuse to initiate beaver dam blasts. With these detonators, there is the potential for shrapnel from the detonator shell flying out and cutting off shock tube or detonating cord trunklines and downlines before the reaction front reaches that point, thus leading to a misfire. The concern is much greater when using shock tube surface delays since detonating cord is much more resistant to this problem. WS training seems to adequately address this issue with use of detonating cord. More base charge in the detonator means a higher risk of downstream cut-off. Standard strength starter caps should be shielded with dirt, mud, a rock, log, branch, or other means of preventing shrapnel from cutting off shock tube downstream of the initiation. Alternatively, low-strength detonators like those used on the surface end of a dual ended nonelectric shock tube assembly could be used without the need for shielding. If WS continues to use standard strength starter caps with shock tube surface delays, instructions on shielding should be added to the training program and orange checklists for shock tube systems.

    b. Include and discuss Figure 9 from IME SLP-4

Figure 9 in the March 2000 edition of IME SLP-4 Warnings and Instructions for Consumers in Transporting, Storing, Handling, and Using Explosive Materials shows the recommended method of attaching a detonator to detonating cord. This figure should be included in WS blaster's training. In particular, blaster's should be trained to keep the loop of detonating cord behind the detonator plug as shown in the figure to minimize the possibility of the detonator become detached from the cord.

    c. Discuss the importance of determining the resistance of blast circuits

During training, WS blasters should be instructed to determine the actual resistance of the blast circuit and compare that value to the expected value. Determining the continuity of the blast circuit merely tells the blaster that an open circuit is not present. It does not provide enough assurance that circuit is not shorted, or an initiator was left out. WS training contractors should provide instructions on how to estimate resistance and troubleshoot measured resistance values that do not match the expected values. This should be added to the checklist for electric detonators and the Standard Operating Procedures for Rocket and Cannon-net Use.

    d. Encourage replacing blasting wire when it becomes damaged

During training, WS blasters should be encouraged to replace blasting wires or any other equipment when it becomes damaged. Nicks in the insulation and splices are indications of damage. Introduce the concept of "lead-lines" and "connecting wire". From SLP-12, lead lines, also called firing lines, are "[t]he wire(s) connecting the electrical power source with the electric or electronic blasting circuit."

Connecting wire is "[w]ire used to extend the firing line or leg wires in an electric blasting circuit." Connecting wire should be discarded after each use. Trim the blasting wire ends every time prior to making a wire splice connection for beaver dam blasting and rocket nets.

e. Discuss proper wire connection techniques

During training, WS blaster's should be shown the recommended techniques for proper wire connections, i.e. page 182 of the ISEE Blaster's Handbook and manufacturer literature. Additionally, WS should consider the use of quick connectors like alligator clips on trunklines to minimize the "time-over-charge" while hooking up rocket net charges.

11. Ensure that Type 2 magazines are secured to a fixed object or otherwise protected from unauthorized removal.

WS should ensure all Type 2 magazines meet the standard for anchoring in Explosives Handling Procedures for Beaver Damage Management, September 2007, section XII Rule 4a.

12. Allow the use of a Type 3 magazine for transportation rocket net charges and explosives other than detonators.

IME commends WS' policy to use a separate container for the transportation of rocket net charges. The charges contain heat and friction sensitive materials primed with an electric squib. Although it would be legal to transport the rocket net charges outside of a separate container in approved packaging, a considerable margin of safety and security is added by using a separate box. IME believes that WS should allow the use of lighter, Type 3 day boxes in lieu of IME SLP-22 boxes as presently required for transportation of rocket net charges and other explosives besides detonators. This would not compromise the safety and security of the transportation. It would improve the safety of handling the container, which is usually taken in and out of the vehicle after each project, since it could be lighter in weight. Type 3 magazines could also be used to transport items such as detonating cord, safety fuse, pull-wire igniters, and shock tube without compromising safety or security.

13. WS should review the general housekeeping of magazines.

Magazines should be used exclusively for the storage of explosive materials and other such blasting materials and accessories as may be permitted by WS. No tools, except approved conveying and cleaning equipment, should be stored in a magazine. Magazine floors should be swept regularly and kept clean, dry, free of grit, paper and rubbish. Sweepings from floors of magazines shall be disposed of in accordance with approved practices. The land within twenty-five (25) feet (7.6 m) of any magazine should be kept clear of rubbish, brush, dried grass, leaves, dead trees, and all live trees less than ten (10) feet (3 m) high. Volatile materials should not be stored within fifty (50) feet (15.2 m) of outdoor magazines.

14. Develop an internal SOP for repackaging explosives for transportation.

For the same benefit as mentioned in recommendation number 12, WS should develop Standard Operating Procedures (SOP) and provide the materials for repackaging of explosives in smaller packages. This would allow the use of smaller, lighter, more manageable, and ultimately safer transportation from a material handling standpoint without compromising safety or compliance.

In general, WS needs an SOP to provide guidance on obtaining and using DOT-approved cardboard boxes for Packing Group II hazmat, maintaining the distributor's approved packaging and re-closure method, and applying proper hazmat marking and labels to the package. Detailed guidance on the elements of this SOP is beyond the scope of the current work, but IME would be happy to assist WS in the development of the SOP. The SOP could serve as the primary tool for compliance with DOT hazmat employee training as described in 49 CFR 172 Subpart H.

15. Revisit the validity of various letters and approvals from ATF and DOT.

In general, a letter, variance, or approval must be reviewed for continued validity any time an agency changes the affected regulation or policy regarding the regulation. Examples of these types of documents in the WS program are:

a. Letter from Wayne Miller, ATF to W.F. Stevens dated July 14, 1989,
b. DOT Special Approvals nos. SA-890925 and 890604 from 1989, and
c. Temporary overnight vehicle storage variance.

These types of documents may not be valid or may need updating. For example, today, ATF would probably not issue the same letter to Mr. Stevens and would likely remind the recipient of maintaining bullet resistance as discussed elsewhere in this report. The DOT SA letters refer to specific trade names that may no longer be applicable or all-encompassing. Any other such letters should be reviewed.

16. Ensure that Type 2 magazines are secured to a fixed object or otherwise protected from unauthorized removal.

WS should ensure all Type 2 magazines meet the standard for anchoring in Explosives Handling Procedures for Beaver Damage Management, September 2007, section XII Rule 4a.

17. Ensure that magazine sites are posted with proper warning signs.

The premises upon which all outdoor magazines, except Type 3, are located should be posted with signs reading "Explosives - Keep Off." These signs should be in contrasting colors with a minimum letter size of 3 inch (75 mm) height with 1/2 inch (12.5 mm) brush stroke. All signs should be located so that a bullet passing through the sign will not strike a magazine and no sign should be attached to a magazine.

All normal access routes to explosive materials storage facilities should be posted with the following warning sign:

DANGER
NEVER FIGHT EXPLOSIVE FIRES
EXPLOSIVES ARE STORED ON THIS SITE
CALL _____

The sign should be weather-resistant with a reflective surface and lettering at least 2" (50 mm) high. The first two lines shall be in red lettering and the remaining printing in black.

18. Document all safety training including tailgate sessions and instructions to cooperators.

WS does an outstanding and complete job of safety training employees and cooperators. Some of the training, like blaster's certifications and national rocket net training classes are well documented. However, WS should document all training including "tailgate" sessions and training given to cooperators. This documentation needs to record the date, names of the individuals trained, and description of the elements covered. For example, if a cooperator is trained on how to use bird bangers and screamers using the "Quick Card" developed jointly by WS and OSHA, the description of training merely needs to state "reviewed WS/OSHA Quick Card."

APPENDIX A
Dossiers of Field Audit Personnel

Lon D. Santis
Manager of Technical Services
Institute of Makers of Explosives
Washington, DC
March 25, 2007

Lon was born near Pittsburgh, Pennsylvania and graduated from the University of Pittsburgh with a BS and MS in Mining Engineering in 1985 and 1986 respectively.

He worked a short time for the Ensign-Bickford Company as a explosives sales representative before 12 years of employment at the Pittsburgh Research Laboratory of the US Bureau of Mines, now operated by NIOSH. There, he managed a variety of explosives research projects relating to transportation, initiation systems, permissible explosives, lightning, toxic gasses, and environmental concerns. In 1998 he became the Manager of Technical Services at the Institute of Makers of Explosives (IME) in Washington, DC. At IME, he manages the IME Technical Committee, the Transportation and Distribution Committee, and the Security Committee. He interacts with all Federal Agencies with interest in commercial explosives and oversees IME's safety library.

He has authored dozens of technical papers and given scores of presentations on many explosive safety and security topics. He is a member of many professional societies and committees including:

- Board member of the Potomac chapter of the International Society of Explosives Engineers (ISEE),
- Member of ISEE and their
  - Program Committee
  - Security Committee
  - Transportation Committee
- Member of the American National Standards (ANSI) A10 Committee on Construction Safety and
  - Chair of A10.7 Committee on explosives safety in construction
- Member of three National Fire Protection Association (NFPA) technical committees,
  - Explosives
  - Lightning
  - Static Electricity
- Member of the International Code Council

Lon and his family reside in Ijamsville, MD.

NAME: John L. Turner
COMPANY: Orica USA Inc. – Eastern Division
ADDRESS: 8518 Allman Rd. (home)
Lenexa, KS 66219-1820
Mobile (913) 708-5382

NAME: John Turner

TITLE: Technical Manager for the Eastern Division of Orica USA Inc.

EDUCATION:

- 1975 Bachelor of Science from the University of Tennessee

EXPLOSIVES WORK EXPERIENCE:

- From 1981 to 1989 -- positions with Atlas Powder Co. as a Sales Representative, Technical Representative, and Bulk Emulsion Technical Specialist. Gained blasting experience in the quarries, construction projects, and coal fields of Tennessee, Kentucky, and West Virginia. Underground experience in the metal mines in TN and the limestone mines in Central KY.

- From 1989 to 1995 -- Senior Technical Representative in the Central Division of Atlas Powder Company which became part of ICI Explosives in 1990. Gained extensive experience in the quarries, construction projects, and underground limestone and metal mines of the Central US.

- From 1995 to present — Technical Manager for the Central Division of ICI Explosives USA, Inc. which was reorganized into a division of the Quarry & Construction business unit by Energetic Solutions, Inc., in 1996 and then purchased by Orica USA Inc.

- Technical papers presented at the International Society of Explosives Engineers concerning a review of wall control techniques and blast design for a major construction project MN.

- Blaster training seminars, blast design, and analysis for Orica USA Inc. customers, and blasting industry related organizations, such as the NSSGA and NIOSH.

- Active representative for Orica to the Institute of Makers of Explosives.

Steve Harris

Western Division President

Austin Powder Company

Education:

1977 Bachelor of Science – Business Administration - California State University

Employment History

- 1987 to present – Austin Powder Company
  - Location Manager and Blaster, NW Oregon and SW Washington
    - Managed the location and blasted at various quarries and construction projects
  - Technical Sales Representative
    - Sales and technical consulting in Alaska, Oregon, Washington, Wyoming, Nevada, California, Hawaii, Idaho
  - Western Division Technical Manager
    - Blaster Training
    - Division Safety and Compliance
    - Blast design and analysis
    - Involved in the development of QED blast design modeling software
    - Product development
  - Western Division President
    - Overall responsibility for sales and operations in the Western Division
- 1985 to 1987 – North Pacific Drilling and Blasting
  - General Manager – Hawaii Operations
- 1981 to 1987 – Burrell Drilling and Blasting
  - Estimator
  - Project manager
  - Blaster
- 1975 to 1981 – Don Harris and Associates
  - Seismograph Technician

Member: International Society of Explosives Engineers (ISEE)

Joe McCormick
881 S Jupiter Hills Cir
Syracuse, UT (801) 232 – 8786 Mobile (801) 328 – 6510 Office
Position Dyno Nobel , Sr. Technical Service Representative, SLC, UT
Experience
DNA, Sr. Technical Service Representative May 2004 - Present Syracuse, UT

- Co-leader KUC/DNA Blast Optimization Team
- Manage DNA's Western Region Blaster and Equipment Operator Appraisal Program and conversion to a Competency Vs Compliance Program for our wholly owned sites
- Electronic Initiation Systems Training Coach
- Manage DNA's Western Region Customer Dissatisfaction Report and Complaint Program
- Work with DNA's 50/50 JV's and Independent distributor training requests and electronic detonator trials

DNNA, Technical Coordinator PRCC Nov 2002 - May 2004 Gillette, WY

- Assisted in the development and presentation for the PRCC/DNNA MER
- Coordinate consistency with DNNA corporate technical staff, DC, South Basin Distribution Site shot service crews and PRCC management for standardized pattern designs, which meet 2003 budgetary requirements in the T/S operation.
- Participate in T/S, Cast and HWST BOT Process and implemented best practices from BOT process and documentation of improvements with design modifications.

DNI, Technical Support/Training Manager Jan 2000 - Nov 2002 Miami, FL

- Trained SE Region blasters and equipment operators in DNNA's Blasting Safety, Surface Blasting SOP's, Open Pit's I, II and III -20/20 Vision Modules
- Assisted outside counsel for arbitration and defending alleged blast damage.
- Assisted corporate technical staff and DC to resolve loss of depth issue at WRQ's, limit liability for construction blasting, design patterns standards for close in proximity of residential neighborhoods for DNNA's account base in Florida.

Ireco of Florida, Sales/Tech Services/Blaster Jun 1991 - Jan 2000 Miramar, FL

- Sales – Prepared and presented quotes for surveying, price increases and new business for limestone construction and mining accounts in FL market base.
- Technical Services – developed risk assessment procedure to control blast event loss, quarterly report process for contract with Tarmac, weekly BOT for WRQ's and GPS program for Broward County Blasting Ordinance. Serviced mining and construction industry to stay within varying local vibration ordinances.
- Blaster for limestone construction and mining accounts in South East FL

FLOREX Explosives Jun 1990 - Jun 1991 P Pines, FL

- Technical Services – Managed shot service crew for JWA's limestone mining and construction accounts in Dade, Broward and Palm Beach Counties, FL.

Thermex Energy Corporation/SEC Mar 1986 - Jun 1990 Miami, FL

- Technical Services – Managed shot service crew for JWA's limestone mining and construction accounts in Dade, Broward and Palm Beach Counties, FL.
- Managed explosive delivery contract for Tarmac which produced 10 mil tons/yr

Alpha Explosives Dec 1985 – Mar 1986 Sonora, CA

- Technical Services – Managed shot service crew for Sonora Gold and serviced mining and construction accounts near Lincoln, CA

Thermex Energy Corporation July 1985 - Dec 1985 Gallup, NM

- Technical Sales – Serviced P&Ms McKinley, Peabody Energy's Kayenta, Utah International's Navajo, San Juan and Laplata surface coal mines and Phelps's Dodge copper mining operations in NM and AZ

The Ensign-Bickford Company May 1984 - July 1985 SLC, UT

- Sales Representative - Serviced independent distributors that carried EBCo products for the mining and construction market base in UT, NV, ID and WY

Education South Dakota School of Mines and Technology

- B.S. Mining Engineering May 1982

21

Listing of all Explosives Reviewer Recommendations

Directives, Manuals and Operating Procedures (DMP)

1 WS Directive 2.435 Explosives Use and Safety

- Add a paragraph to section four addressing the explosives possession prohibitions from the Safe Explosives Act. Federal Law prohibits the possession of explosives by certain individuals. WS should ensure that employees are aware of these prohibitions and take action to prohibit possession of explosives by prohibited individuals.
- The web address listed in section four does not work and should be updated. (http://www.aphis.usda.gov/mrpbs/forms/aphis/aphis256-5.pdf)
- Add a reference to Department of Transportation regulations at 49 CFR Parts 106, 107, 110, 171 through 180, and 397 in section five.
- Eliminate and expand certain references to 27 CFR Part 555. Subpart D does not apply to any WS activity and can be deleted. All of Subpart G could be referenced, not just 555.126 and 127. All of Subparts I, J and K should be referenced.

2 WS Directive 2.625 Pyrotechnics, Rocket Net Charges, and Incidental Explosive Materials

- Add a paragraph to section four addressing the explosives possession prohibitions from the Safe Explosives Act. Federal Law prohibits the possession of explosives by certain individuals. WS should ensure that employees are aware of these prohibitions and take action to prohibit possession of explosives by prohibited individuals.
- The references in section five should be consistent with WS Directive 2.435 for 49 CFR and 27 CFR.
- Delete the phrase “and approved as legal explosive devices by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)” from section I of Attachment 1. ATF does not engage in such approvals.
- Delete the phrase “exceeds these standards and” from section IA, Rule 3b. An IME 22 container does not necessarily meet the bullet or theft resistant requirements of a Type 2 magazine, or the theft resistance of a Type 4 magazine.
- Mention the OSHA requirement for indoor magazines being readily removable from the building in the event of an emergency in Section IA, Rule 3b.
- Replace “small cardboard boxes” with "original packaging" in Section IA, Rule 4.
- Add a rule for informing the local jurisdiction responsible for fire safety of explosives and pyrotechnics storage in magazines.
- In Section V, delete “site” from the first sentence. Each magazine should be inspected, not just the site.

3 Develop an internal SOP for repackaging explosives for transportation.

4 APHIS SAFETY INSPECTION CHECKLIST (Hazardous Chemical Storage, Explosives Storage, and Waste Disposal), APHIS FORM 256-5 (June 97)
- Insert "at least" before "once" in question #39.

5 Wildlife Services Explosives Training Workshop, What-to-bring List
- Consider eliminating the reference to a "nonsparking" knife. It is not a well-defined term.

6 Standard Operating Procedures for Rocket and Cannon-net Use, August 8, 2006
- The terms "should" and "will" are used apparently interchangeably in the document. WS should consider whether both terms should be used and if not which one should be used. If both terms are used, WS should be able to justify why one term is used in one place and the other is used in another place.
- Edit section III, A.8 as follows: "Smoking, matches, open flame, and spark-producing devices are not permitted within 50 feet of outdoor explosives magazines or in the same room as indoor magazines. Combustible materials and flammable liquids will not be stored within 50 feet of outdoor magazines. The land surrounding an outdoor magazine will be kept clear of all combustible materials for a distance of at least 25 feet."
- Revise Section IV in accordance with the resolution of the IME recommendation on use of SLP-22 boxes.
- Refer to IME SLP-20 in section VIII.1 for control of radio frequency hazards.
- Add "NET OPERATOR-IN-CHARGE looks for a misfire, gives the all clear, or goes to XI." as the first step in section X.

7 Explosives Handling Procedures for Beaver Damage Management, September 2007
- Consider adding a definition for the "Chair of Explosive Committee."
- In section II, part D.1, delete the phrase "quantities of more than 1,000 detonators (regardless of package classification); quantities of more than 1,000 detonators (regardless of package classification)." Quantities of over 1,000 detonators may be shipped as Division 1.4. Likewise, delete the phrase "(less than 1,000)" in D.4.
- Edit the last sentence in section II, part D.6, to read: "Detonators packaged as Division 1.4 explosives can be stored in Type 4 magazines."
- Consider replacing the definition of "shock tube" and "electric detonator" with that found in IME SLP-12.
- Relabel the section titled "D. Miscellaneous" section "E".
- Replace the phrase "blasting site" with "blast site" throughout all WS literature.
- Add a definition for "blast area: The area of a blast within the influence of flying material, gases, and concussion." Use this term instead of "blasting area" throughout WS literature.
- Examine font issues in the document since it looks like quotation marks are not displayed properly in either the electronic or hard copies provided.
- Alphabetize the list of terms in section "[E]. Miscellaneous".

- Consider replacing the definition of "shunt" with the newly revised IME definition from SLP-12:
  - SHUNT (noun) - A connection between two wires of an electric detonator which prevents building up of opposing electrical potential in them.
  - SHUNT (verb) - The means (or action) whereby build-up of extraneous electrical energy is prevented, diverted, current limited, or redirected in a detonator assembly to minimize the probability of an unplanned actuation of the ignition element.
- Delete the phrase "size No. 8 or equivalent" from section IV.A.3. Strictly speaking, detonators are not tested to this standard making it essentially impossible to meet. As an alternative, WS could say "400-450 milligrams PETN base charge or equivalent."
- Add the phrase "when the combination of the magazine and the building provide bullet resistance" to the end of section XII Rule 4b.
- Delete Rule 9 in section XII. WS needs to repackage explosives in smaller boxes and this may be best accomplished inside the magazine.
- Edit the first sentence in section XII, Rule 13 as follows. "Smoking, matches, open flames, and spark or flame-producing devices are not permitted inside or within 50 feet of an outdoor magazine; or in the same room as an indoor magazine.
- Add the word "outdoor" before "magazine" in Rule 14 in section XII.
- Make Rule 15 in section XII consistent with the resolution of IME's recommendation on magazine warning signs.
- Consider adding rocket net charges to section XIII.
- Revise rules 2-5 based on resolution of IME's recommendation on use of Type 3 magazines for transportation.

8 Wildlife Services Explosives Program Definitions (undated?)
- Consider eliminating this document since it appears to be redundant with section II of Explosives Handling Procedures for Beaver Damage Management , September 2007. Duplicative standards are prone to developing inconsistencies.

9 Misfire Procedures Ez Det Detonator Nonelectric Shock Tube Assembly, June 2002
- Remove the trade name "Ez Det" and replace it with the generic term "dual ended". "Ez Det" is a registered trademark of Dyno Nobel Inc. and in places where the term word is appropriate, WS could include the registered trademark symbol (®) following the word.

10 Checklist for the Use of Nonelectric Shock Tube Detonators, May 2003
- IME recommends no changes, except as discussed in the recommendation for covering starter caps.

11 Checklist for the Use of Ez Det Detonator Nonelectric Shock Tube Assembly, June 2002
- Remove the trade name "Ez Det" and replace it with the generic term "dual ended". "Ez Det" is a registered trademark of Dyno Nobel Inc. and

in places where the term word is appropriate, WS could include the registered trademark symbol (®) following the word.

12 Checklist for the Use of Fuse Detonators
- IME recommends no changes, except as discussed in the recommendation for covering starter caps.

13 Checklist for the Use of Electronic Detonators
- IME recommends no changes, except as discussed in the recommendation for covering starter caps.

14 Subpart K-Storage
- This is apparently intended to be a copy of ATF storage regulations. WS should provide a copy of the most recent version of ATF publication 5400.7, Federal Explosives Law and Regulations to trainees and consider eliminating this section of the Manual.

15 Untitled
- A WS form for "Transportation Inventory" and "Daily Vehicle Inspection" is in the Manual, but has no title and should be given one. IME recommends no other changes, but notes that the form is applicable to beaver dam blasting only.

16 IME Bulk Truck Marking & Placarding Guide
- IME recommends elimination of this from the Manual. It has no applicability since WS does not allow transport of explosives and oxidizers in the manner covered by the guide.

17 Procedures for Preparing Safety Fuse and Fuse Detonator Assemblies, No. 5A, Feb 9, 1998
- Consider elimination of the document. Relevant parts should be already in or added to the Checklist for the Use of Fuse Detonators, May 2003.

18 Safe Practice with Nonelectric, Shock Tube Initiation System, No. 4, March 11, 1994
- Eliminate this document. It does not accurately describe the phenomenon. WS should continue to emphasize the IME recommendation from SLP-4 to "NEVER pull wires, safety fuse, shock tube, coupling device, plastic tubing, or detonating cord out of any detonator or delay device."

19 IME and ISEE's Guidance on Passing through Airport Security Checkpoints for Commercial Explosive Professionals, July 2003
- WS should replace this with the February 2005 edition.

20 Voluntary Security Checklist
- WS should replace this with ATF Publication 5400.15, Safety and Security Information for Federal Explosives Licensees and Permittees, March, 2007.

21 WS should develop an internal SOP for repackaging explosives for transportation.

22 Revisit the validity of various letters and approvals from Alcohol Tobacco and Firearms (ATF) and Department of Transportation (DOT).

Management and Administration (MA)

1 Implement ways to limit employees working alone with explosives and water hazards related to beaver impoundments.
2 Involve the WS Explosives Committee in the review of all accidents involving explosives or pyrotechnics.

Training Program (TP)

1 Modify training or checklists to include the following elements.
    - Control starter cap shrapnel with shock tube systems.
    - Include and discuss Figure 9 from IME SLP-4 (Methods to attaching detonators to detonating cords.)
    - Discuss the importance of determining the resistance of blast circuits.
    - Encourage replacing blasting wire when it becomes damaged
    - Discuss proper wire connection techniques
2 Carry-over the certification process for blasters to the rocket net program.
3 Document all safety training including tailgate sessions and instructions to cooperators.

Additional Safety Staff (SS)

1 Ensure that at least ½ FTE be devoted to the national coordination of the WS explosives and pyrotechnics safety and security program.

Equipment, Facilities and Maintenance (EFM)

1 Allow the use of a Type 3 magazine for transportation rocket net charges and explosives other than detonators.
2 Consolidate explosives storage sites and make efficient use of indoor magazines.
3 Purchase multi-function gas detectors for blasters that enter confined spaces such as culverts and train such blasters in confined space entry procedures.
4 Ensure that Type 2 magazines are secured to a fixed object or otherwise protected from unauthorized removal.
5 Ensure that magazine sites are posted with proper warning signs.
6 Consider purchasing manufactured fuse cap assemblies.
7 WS should review the general housekeeping of magazines.
8 Provide employees with proper personal protective equipment. (e.g., safety glasses for all pyrotechnic and explosive uses and steel-toe shoes when handling SLP-22 or Type 3 boxes and rocket nets.)

Culture (C)

1 Implement ways to limit WS employees working alone with explosives and water hazards related to beaver impoundments.
2 Improve cooperator assistance with safety.

Firearms Safety Report

National Security Academy
26070 Blue Star Hwy
Havana/Tallahassee, Florida 32333

USDA APHIS Wildlife Services
2008 Firearm Safety Review

USDA APHIS Wildlife Services Firearm Safety Review

Table of Contents 2

Purpose of Review

In 2007 Wildlife Services authorized and initiated a programmatic review of all aspects of their National Safety Program. This report specifically addresses firearms and pyrotechnic safety training, policies and procedures.

The following report was compiled after six (6) site visits, including observation of a firearms training workshop and participation in (8) field operations. Information was gathered from more than 120 Wildlife Services employees including State Directors, District Supervisors, Firearms Trainers, Biologists, Field Employees and participants on the Firearms Review Committee.

Based upon review of the WS Directives, Firearms Training Manual, State Office Evaluations, Field Inspection Reviews, and Employee Interviews, this report presents findings and recommendations relative to firearm and pyrotechnic safety within the Wildlife Services Program.

Background

Wildlife Services Employees are involved in Wildlife Management, not sport hunting or law enforcement. They frequently conduct wildlife damage management operations under difficult or unusual conditions in both rural and urban settings, sometimes in high profile situations. When firearms are used, Wildlife Services personnel must be highly competent and demonstrate a thorough understanding of firearm safety in all their actions. Safety will not be compromised for any reason. (USDA WS Firearm Safety Manual 2002).

Wildlife Services is unique among the APHIS programs within the Federal Government. They use firearms and pyrotechnics on a daily basis more than any other Federal, State or Local Law Enforcement entity. While they are not considered a law enforcement entity, many of the " tools" they use and training they receive is very similar to the tools used and training received in law enforcement training programs. They frequently conduct wildlife management operations under difficult or unusual conditions in both rural and urban settings, often in high profile situations.

Wildlife Services' mission has grown over the years. In addition to providing solutions to ranchers and farmers, their expertise has necessitated urban solutions as well. Many of the Wildlife Services cooperators are airports (both military and private), local and state government as well as urban corporations. Providing safe solutions to wildlife damage becomes paramount in these environments.

Unfortunately, as society continues to become more litigious it is of greater importance to have a sound firearm safety program. This is the insurance policy that programs and agencies must have in place to reduce liability; ensure the competence and safe use of firearms to humanely dispatch wildlife; protect the well being of WS employees; and to protect the public.

WS Employee Firearm Safety Training Objective

To develop in Wildlife Services employees, the basic knowledge, skill, and attitude essential for the safe and efficient use of firearms in the performance of their duties.

Knowledge is defined as:

The expertise and skills acquired by a person through experience and education.

***Skill is defined as**:*

The ability to do something well, based on knowledge, practice, and aptitude.

Attitude is defined as:

One's mental state, including beliefs, feelings, and values, and the disposition to act in a certain way. Attitude is a difficult concept to teach or learn, and is most often acquired through the practice, demonstration, and actions of others.

The concept of firearm safety "attitude" must start from the top in order to have a "trickle-down" effect. Attitude must be endorsed by credible role models such as leaders of a corporation or respected employees within an organization or agency. They must display enthusiasm for those in charge and they must actively participate in the activity to help others see the value. Firearm safety must be endorsed by authority and must be actively demonstrated through actions so that others understand and recognize the value and importance.

Directives

WS Directive 2.615 04/07/06
WS Firearm Use and Safety -This directive establishes guidelines for the use of firearms in the conduct of official duties and prescribes standard training requirements.

For the purpose of this Directive, handguns, rifles, and shotguns are considered firearms. This directive also covers pyrotechnic pistols, net guns, paint ball guns, dart guns, air rifles, arrow guns, and crossbows.

This adequately addresses "what is considered a firearm."

Use and possession of firearms must be in accordance with applicable Federal, State, and Local laws and regulations.

This adequately addresses use and possession; however, most WS employees were unfamiliar with the Federal and State laws governing their States. Adding a copy of the applicable Federal and State laws to their Firearms manuals with additional training would be sufficient.

All firearms used in the performance of official duties will be furnished with a locking device (e.g. trigger lock).

100% of States were in compliance. One of the States that we visited interpreted this to mean that employees had to keep trigger locks on their firearms at all times, except when in immediate use, others had trigger locks on their firearms inside locked boxes and inside safes. In addition, use of some trigger locks disabled use of firearm safeties.

Recommendation: *Trigger locks should be used when no safe, vault or cabinet is available for storage. Use of safeties is paramount to safe gun handling and should always be on when firearms are not in immediate use.*

Firearms may be transported or carried in an accessible manner when immediate use is necessary or likely.

This does not adequately address the question of how to "safely" transport a firearm in a vehicle. During site visits it was observed that there was no uniform method of transporting firearms. Some employees placed their firearms on the seat behind them, some on the passenger seat beside them, some on the floor behind their seats etc. There was no uniformity in the direction that the muzzles were pointing.

Recommendation: *Vehicles should be equipped with a rack or storage device that securely holds the firearm until it is ready for use. The rack should be of a design that allows for easy access and that allows the action to be locked open. Muzzle down floorboard racks are recommended.*

Firearms will not have a cartridge in the chamber while being transported in a motor vehicle except where standardized procedures and guidelines have been established by the WS program and the specific procedures and guidelines concerning such practices are fully implemented (i.e. Sharp Shooting Procedures/Guidelines for White-tailed Deer Damage Management).

This adequately addresses "not" to have a cartridge in the chamber while transporting a firearm; however employees cannot be sure if this is in fact the case, unless the chamber is open, and or the bolt is locked to the rear. Several employees who had the bolts of their firearms forward (chamber closed) stated, "There were rounds in the magazine, but not in the chamber".

Recommendation: *This is an unsafe practice, and should be addressed. (The Benelli shotguns in use by many of WS filed employees cannot be locked to the rear while there are shells in the magazine so there is no way to visually tell that that a shell is not chambered).*

All WS personnel, regardless of employment status, and official volunteers who are required or requested to use firearms in the conduct of official duties will be provided firearm safety and handling training as prescribed in the WS Firearm Safety Manual.

This adequately addresses "who should receive firearm safety and handling training".

New employees must be provided such training or have completed a State Hunter Safety Course or other approved firearms safety-training course within the last year prior to using firearms on the job.

85% of Employees interviewed were deficient in this requirement. Most Hunter Safety Classes that had been taken by employees and used as prerequisite training for employment had been taken more than a year prior. In at least 75% of these cases, the Hunter Safety class was taken more than 5 years prior and did not include live fire. Hunter Safety class curriculum varies from State to State and the majority no longer includes live fire.

***Recommendation**: The State Hunter Safety Course or other approved firearms safety-training course must include a live fire segment. A dated copy of this certificate should be required and retained in personnel files. It should not be deemed acceptable to waive WS firearm safety training for any reason. New employees should not be issued firearms until they have completed WS Firearm Safety Training.*

All employees who use firearms will take continuing education training on firearm safety and handling biennially.

75% of States visited conduct "firearms training" at or during "Annual State Meetings," usually consisting of less than one full day of training to train/ recertify employees in pistol, shotgun, rifle, and pyrotechnics. In at least one State no live fire was conducted.

***Recommendation**: Firearm and Pyrotechnics training should be separate, and taught free of the distractions and limitations encountered during a "State Meeting". Curriculum from a nationally recognized organization should be implemented with the addition of other pertinent State firearms training information such as the inclusion of Federal, State and Local Firearm Laws and other relevant training. Live fire should be mandatory.*

Familiarity of directives by employees.

99% of employees interviewed had been provided copies of the directives. 75% were given copies of the WS Firearm Safety Manual. The remaining 25% had accessibility to a copy of the Firearms Safety Manual. While employees were familiar with the directives, there was confusion and misinformation on their part regarding specific policy and procedure. For example, " when it is allowable for a firearm to have a chambered round in a vehicle" was interpreted several ways. Some employees said that when the muzzle of a firearm is out the window, it is not considered "in the vehicle." Some stated, " one foot had to be on the ground outside of the vehicle." Others stated, " If they were in pursuit of wildlife, they could have a round chambered."

***Recommendation**: Directives should be as specific as possible when addressing firearm safety issues especially when involving firearms in a vehicle. Reducing confusion by exacting specific procedure will help to ensure safe gun handling in and out of vehicles.*

All WS employees that use firearms are subject to random drug testing.

2% of all employees interviewed that use firearms have been randomly drug tested.

***Recommendation**: All employees that use firearms should be drug tested prior to employment. In addition, if a firearms related incident/accident occurs, drug testing should be mandatory.*

WS Directive 2.625 1/01/06
Pyrotechnics, Rocket Net Charges, And Incidental Explosive Materials
This Directive establishes procedures for the safe, secure handling, storage and transportation of pyrotechnics, rocket net charges and other incidental explosive materials for pest control management.

Pyrotechnics are stored in accordance with ATF regulations, Federal, State and Local Law.

100% of States visited stored pyrotechnics in State offices or warehouses in appropriate containers in accordance with ATF regulations and Federal, State and Local Law.

Pyrotechnic ammo is transported and stored in vehicles in IME-22 containers.

80% of pyrotechnic ammo was properly contained and transported in IME-22 containers. Several employees carried pyrotechnic ammo in their vehicles in zippered pouches.

***Recommendation:** Pyrotechnic ammo should be carried in IME-22 containers as required in the directive.*

Pyrotechnics will not be stored in the same magazine with rocket net charges or explosives used for removing beaver dams.

100% of pyrotechnics observed were properly stored in magazines without rocket net charges or beaver dam explosives.

Field personnel are required to document pyrotechnic use.

100% of field employees observed using pyrotechnics documented pyrotechnic use.

Employees assigned to using pyrotechnic pistols and other launching devices will receive safety training in their use as required Directive 2.615.

75% of employees complained that they did not receive adequate training prior to pyrotechnic usage. Several employees while using pyrotechnics were cautioned to treat the pyrotechnic firearm (point in a safe direction), as it was any other firearm. They were not perceived to be "real" firearms.

***Recommendation**: Pyrotechnic training needs to be part of the Firearms Training Program conducted on an annual basis. Training should take place prior to field use.*

Vehicles must contain fire extinguishers when using Pyrotechnics.

In 100% of vehicles where pyrotechnics were being used, fire extinguishers were present. Field employees did say however they did not know how old the fire extinguishers were and when they had been last tested.

***Recommendation:** Fire extinguishers should be tested on an annual basis to assure workability. Employees should receive training on their use.*

Administration

There is an adequacy of staff at the State, Regional, and National levels to administer an effective firearm safety program.

There is an adequacy of staff in place at each of the above levels to ensure that an effective firearm safety plan is both implemented and administered. However, during site visits some deficiencies were noted at each level.

State level – State Directors have the ability to administer an effective firearm safety program, however, several of them stated that "budgetary and time management issues often result in not being as effective as they could to be". One State Director even stated that IT training took precedence over firearm training.

Regional Level - Firearm Committee Members have the ability to administer an effective plan, however members of the committee indicated there was no budget or real mission.

National Level – The staff at the National level have the ability to administer an effective plan, however, with the exception of the directives, and the WS Firearm Safety Manual, there does not appear to be a "National Plan" regarding Firearm Safety.

Wildlife Services has a National Safety Incentive Program in place (Safety Award). It is not specific to Firearm Safety.

75% of employees were unfamiliar of or unaware of a safety incentive program (safety award).

***Recommendation:** The award program should be spelled out more clearly to address; the criteria to be nominated, and what winning the award would mean for the recipient. It may also be beneficial for a specific firearm safety award to be instituted.*

Employees' attitude and participation in the Wildlife Services Safety and Health Council Improvements and Guidelines.

100% of employees thought the concept of the safety and health council were good. Most employees that were the appointed "Coordinators" viewed their positions as nothing more than " additional paperwork". Half of the Safety Coordinators said that recommendations for improvement or changes that

were related to safety concerns were ignored. Other coordinators said District Supervisors or State Directors told them that they did not have the funding to make the changes.

Recommendation: *If a Coordinator is appointed to make recommendations for safety improvements, then State Directors and Supervisors should try to implement the recommendations, (to the extent that they are reasonable and cost effective) otherwise the program is ineffective.*

Supervisor and state director knowledge of activities and hazards

Knowledge is adequate, as most supervisors and State Directors are familiar with the activities and hazards of fieldwork, having started at that level themselves.

Recommendation*: As the responsibilities of supervisors and State Directors grow, they need to be careful not to allow their focus regarding firearm safety to shift or become diminished.*

Supervisor knowledge of safety program requirements

100% of Supervisors were aware of the safety program requirements,

Supervisor monitoring and review of employee field activities

There are adequate measures in place for the monitoring and review of employees, however, due to the vast amount of land area that each employee often is required to cover, it is difficult for Supervisors and State Directors to have frequent interaction with them.

Recommendation: *Supervisors and State Directors should attempt to "ride along" with each field employee at least annually.*

Manager oversight and corrective action.

There are adequate measures in place to provide managerial oversight and to implement corrective action, when warranted. In 99% of responses there were differences in opinion regarding the clear chain of command, the roles and responsibilities, and the transfer of communication among employees, specifically as they applied to firearm safety. Some States did better than others, while there was room for improvement in all. During one visit it was determined that not all employees (including the Firearms Trainer) had been told of the details of an accident that had occurred months earlier. This was a missed opportunity to have employees learn from, and possibly help to prevent a similar reoccurrence in the future. Corrective action appears difficult, with some supervisors having reluctance to take action against fellow WS employees. In addition, firearm safety incidents seem to be perceived as "no big deal."

***Recommendation**: Corrective Action relative to firearm safety incidents should be perceived with greater importance not just by the person(s) involved directly in the incident but also by all of the employees in the State. It should be viewed that any incident affects the reputation of the entire State, all of its employees and the entire Agency.*

Adequacy of manuals, SOP's, and guidelines.

The manuals, SOP's and Guidelines are adequate to address employee safety and the use and transportation of firearms while on official WS business. Employees had been provided copies of the WS Firearm Safety Manual, and were made aware of Standard Operating Procedures and Guidelines through written notice or in-service training.

While there is adequate access to these materials, some of the material or information is ambiguous or vague. While this may be by design, to allow State Directors the latitude to tailor information to their particular State Program, where safety was concerned, there should be no room for ambiguity or vagueness.

***Recommendation**: The SOP's and Guidelines need to remove some the ambiguity from firearm safety issues. Some of these issues are "shooting from a vehicle", " when a firearm is considered safe or unloaded", "safest way to transport", "storing pyrotechnics in the same container as primers (ignition source)", etc.*

Use and understanding of procedures and requirements of manuals, SOP's and guidelines to all staff.

Many employees were deficient in this regard. One area that stood out as a major source of concern was the lack of knowledge of the four WS Fundamental Gun Safety Rules. While most employees could name several of them, 100% of employees could not list all four. In addition, there were other areas such as familiarization with the SOP's for cleaning firearms and suppressors; and, the safest way to transport a firearm when use is imminent.

***Recommendation**: Adopt the easy 3 NRA Firearm Safety rules to prevent confusion and simplify: 1. Always point the gun in a safe direction. 2. Keep finger off the trigger until ready to shoot. 3. Keep the gun unloaded until ready to use. Provide specific procedures (removing latitude) for firearm safety issues such as the safest way to transport a firearm when use is imminent.*

***The transfer of information among State, Regional and National Levels**.*

State Level: The sharing of information within the State level varied from State to State, with the majority adequately disseminating information among its employees. The sharing of information appears to have increased, as email and cellular telephone usage has risen. There were isolated instances where employees did not have good lines of communication due to the remoteness of their assignments.

State-to-State: There appears to be little communication between States at the level below the State Director. This is unfortunate as many training issues and other concerns expressed by Field Employees and Firearms Trainers could be easily resolved by networking with other States.

Regional to National: While a lot of information was transferred, more could be done to make each State aware of any firearm related accidents or incidents. Many State Directors were not familiar with the Firearms Committee or their purpose and/or actions.

***Recommendation:** Provide direction and funding for the Firearms Committee. Establish an information sharing process. This could be as simple as providing a*

list of Firearms Trainers' phone numbers or starting a forum strictly used for exchanging ideas.

There is a system in place for reporting safety incidents; however; there is no system in place for tracking them.

Accidents and/or incidents where there is damage to person or property are reported. We found no information regarding any firearm accidents, incidents, or safety violations, unless they resulted in personal injury, or damage to Government owned property. Upon interviewing Employees, it was found that many incidents go unreported.

Recommendation: *Devise a tracking system for incidents that fall outside of the damage to person or property guidelines. This could be accomplished with an 800-phone number to report firearm safety violations. The firearms committee would then decide whether an investigation or inquiry is needed and proceed accordingly. In addition, a tracking system may help to identify trends as well as inherently faulty equipment.*

Note: The auto industry tracks faulty parts and accidents associated with certain automobile models in order to prevent further accidents that could be more detrimental to their corporation and to the public. "Recalls" are a product of this tracking system.

The distribution of safety concerns and firearm safety incidents.

While the ability exists, and some States are taking advantage of the opportunity to do so, there appears to be limited sharing of information among the States relative to firearm accidents and/or incident. Information shared could include the best methods to prevent reoccurrence as well as the identification of trends.

Recommendation*: States should develop a sharing information system relative to firearm incidents. While some States may be reluctant to share such information the benefit far outweighs any of the negatives associated with having an accident or incident. Perhaps the Firearms Safety Committee could facilitate this.*

Firearm Training Program Evaluation During Site Visits

Requirement for firearm safety training

The WS Directives, Firearms Safety Manual, and Standard Operating Procedures adequately address the need for both classroom and range training. Employees that use firearms should successfully acquire the knowledge, skill, and attitude necessary to safely handle, use, and transport firearms in their official capacity as WS employees.

Training instructor qualifications

The WS Firearms Safety Training Manual, and WS Directive 2.615 (WS Firearm Use and Safety) recognize the importance of utilizing Certified Instructors from a Nationally Recognized Institution (e.g. the NRA). In 6 of the States visited 4 had NRA certified Instructors in place to train or develop a firearms safety program. In 2 States, the firearms trainers were unavailable.

Recommendation: *Firearms trainers should be NRA certified to provide continuity in training.*

Adequacy of training materials

The WS Firearm Safety and Training Manual is the source of information that most programs are utilizing as the basis for their firearms and pyrotechnic training. While the manual addresses many aspects of firearms safety, it is not detailed enough to be used as a stand-alone reference. Furthermore should be updated periodically.

Recommendations: *Firearms safety materials and training should be uniform for all Wildlife Services employees, regardless of where the training takes place. The only way to ensure this, would be to make the WS Firearm Safety Training Manual more comprehensive, create a stand alone Firearms Safety Training Lesson Plan, or to utilize the materials already in place by a nationally recognized institution (e.g. the NRA) with the addition of materials relevant to Wildlife Services (such as pyrotechnic use, shooting from vehicles, dispatching wildlife in traps etc.).*

Firearm Training Program Evaluation During Site Visits

Recertification training and frequency

Recertification is not specifically addressed other than stating in the directives that firearms training will be conducted biennially.

***Recommendation**: Provided that employees initially complete basic rifle, pistol, and shotgun training (e.g. NRA Basic Rifle, Shotgun, Pistol courses); training should be required for recertification on an annual basis with the abridged lesson plans such as the NRA First Steps Rifle, Pistol, and Shotgun. All field employees that use any type of firearm should be required to meet a proficiency level or qualification. Documentation of this should be retained in the employee's file. Employees should not be issued any firearm for which they cannot attain minimum proficiency.*

Effectiveness of the firearms training program.

The WS Firearms Safety Training Program is effective, and continues to train highly skilled and motivated employees. As the need to hire additional employees that have little or no firearm experience, so does the need to ensure adequate training for them. State Directors, District Supervisors and Field Employees told us that a smaller number of potential employees are applying for new job openings, and the applicants applying have less firearms experience than in the past. This necessitates more training at a basic level.

***Recommendation:** Require training and recertification on an annual basis. New employees should not be issued firearms until they have completed a firearms training program (this could even be arranged through an NRA Instructor outside of the agency). This is more important than has been in the past because of the diminished skill level of applicants. Require a minimum proficiency shooting level for shotgun, rifle and handgun. These firearms should only be issued to those that meet or exceed the minimum proficiency levels.*

Tracking and documentation of firearm training.

There is a tracking requirement in place to document training that an employee receives; WS Form SF 182 (or similar form). All but one of the State Directors interviewed opted to use a different system for recording firearms training. Some

systems were adequate including files that kept employee exams, scored targets or target results, attendance at training, and other pertinent information. One State developed its own certification checklist that tracks proficiency on a pass/fail basis for all of the pyrotechnics and firearms used. Others needed to update the files with and include some of the above information.

Recommendation: *Revise the SF 182, or devise a different form altogether, to make it less time consuming to fill out.*

Availability of relevant safety information and equipment during training

There was an adequacy of ear and eye protection and other needed safety equipment; however, safety information outside of manual or book information was absent everywhere visited. There was no Firearm Safety posters or static displays.

Recommendation: *Display firearm safety posters and other visual safety information to reinforce safety on bulletin boards, safes and in vehicles.*

Firearm Training Program Observation and Evaluation

Availability of relevant safety information and equipment during training.

There was an availability of appropriate training aids including a power point presentation during the classroom segment. An exam was appropriately administered and discussed after use. Firearms were safely handled during the classroom training.

There was an availability of relevant safety equipment including ear and eye protection during live fire training. 100% usage was witnessed during live fire training.

Knowledge of and adherence to safety policies during live fire training.

Employee knowledge of and good adherence to the WS Safety Policies were observed during live training.

On-site hazard communication rules during live fire training.

On site hazard communication rules were reviewed prior to the range training, and were adhered to. The communication rules were adequate.

Recommendation: *Control of firing line should include the use of loud, consistent commands.*

Firearms used during firearm training.

All firearms used during training were Government owned. Training should be conducted with the firearms that employees use on a regular basis in the course of their jobs.

Transportation of firearms to and from the range.

Firearms were transported to and from the range in accordance with WS policy. No discrepancies were noted.

Handling of firearms during live fire.

Firearms were handled in accordance with WS Firearms policy. If firearms were not handled properly, the Firearms Trainer, State Director or other employee were quick to correct the employee.

Storage of the firearms before, during and after live fire.

Firearms were stored in accordance with WS Firearms policy. No discrepancies were noted.

Equipment condition of firearms used during live fire exercises.

An inspection confirmed that all firearms were in good serviceable condition. All safety equipment was clean and serviceable.

Field Inspection Review

Observation of employee adherence to policy, manuals, safety procedures, and guidelines.

On three of the site visits deer management teams conducting fieldwork in urban areas and airports adhered to WS policies, manuals, safety procedures, and guidelines during deer management collection 100% of the time. These teams were among the highest skilled WS employees observed during the Safety Review. This may be attributable to the advanced (sharpshooter) training they had previously undergone, the knowledge that urban areas pose a greater risk for damage or injury, and the use of teamwork to verify all safety rules were followed.

Of the remaining five field visits (ride alongs)75 % of employees adhered to firearm safety policy, manuals, safety procedures and guidelines. Three employees who did not adhere to pyrotechnic and safe firearm transportation procedures were cautioned.

Personal protection and safety equipment used during "ride alongs."

Personal protection equipment was available and used 100% of the time by Wildlife Services employees during the performance of their duties when deemed necessary. Equipment included, but was not limited to, cold weather gear, eye protection, ear protection, and latex gloves. First Aid kits were available in all vehicles.

Hazard communication plan application.

100% of Field employees used communication systems (particularly during airport field operations) appropriately and expertly. Cell phones were also utilized when needed on field operations. There was at least one location where cell service was unavailable during field operations. This is common in very remote rural areas.

Recordkeeping of field employees during field operations.

100% of Wildlife Services employees observed kept adequate records to monitor their daily activities, their productivity, and help to provide information valuable to cooperators and their State Office.

Transportation of firearms during field operations.

With the exception of one isolated incident, firearms were properly transported during all field operations.

Equipment condition during field visits.

The majority of the equipment inspected was in very good to excellent condition. Firearms were clean and serviceable, with (2) exceptions. One rifle was deemed to be unsafe, (safety was inoperable, and trigger pull weight had been reduced). Upon discovery the rifle was taken out of service for inspection and repair. One shotgun was deemed unserviceable and had been stored in a safe at the State Office. Following the inspection, employees tagged the shotgun to prevent use.

Recommendation: *Firearms used in the performance of Wildlife Services duties should not be modified without the approval of the State Director. Any modifications must be made by a certified gunsmith.*

Frequency of maintenance of firearms used for field operations.

Equipment appeared to be well maintained with the exception of the items listed above. Employees did state that they would like the firearms to be inspected periodically.

Recommendation: *Inspection of all firearms should be conducted periodically.*

Accident Review

In the following cases we found that the incidents/accidents could be categorized as a result of: Ignorance (not have adequate knowledge or skill), Carelessness (violation of the firearm safety rules) and Negligence (an attitude where there is complete disregard for the firearm safety rules).

FIREARM ACCIDENTS INFORMATION RECEIVED FOR 2003-2008

Case 1
February 2008
Western Region
Cause: Ignorance

A government owned vehicle sustained damage to the passenger side floorboard when a Wildlife Services Technician discharged his issued Benelli shotgun inside the vehicle. The shotgun discharged when the employee was reaching for it, and inadvertently came into contact with the trigger. No injuries were reported.

***Conclusion**: The following WS Firearm Safety Rules were violated:*
Employee failed to keep finger off the trigger until ready to shoot.
The firearm was not unloaded until ready to use

Case 2
September 2007
Western Region
Cause: Negligence

A government owned vehicle sustained damage to the passenger side door when a Wildlife Services Technician discharged his Benelli shotgun inside the vehicle. Employee stated that the firearm discharged while he was reaching for it, and preparing to depart the vehicle. No injuries were reported.

***Conclusion:** The following WS Firearm Safety Rules were violated:*
Employee failed to keep finger off the trigger until ready to shoot
The firearm was not unloaded until ready to use

**In our opinion, the employee may have been attempting to shoot out of the opened passenger side window, a practice he had been warned on several occasions not to do.*

Case 3
March 2008
Western Region
Cause: Negligence

A Wildlife Services Technician caused damage to the front and rear passenger side doors of his government owned vehicle. Employee stated that he was transporting his Benelli shotgun in a padded, soft side case, safety on, with the bolt locked open on an empty chamber, with live rounds in the magazine. Employee further stated that while driving the vehicle down a series of dirt roads, the bolt closed, causing a round to enter the chamber, the safety disengaged, and that the trigger may have inadvertently been bumped by some of the gear he had in the rear of the truck near the rifle case. No injuries were reported.

***Conclusion**: The following WS Firearms Safety Rules were violated:*
Employee failed to keep finger off the trigger until ready to shoot
The firearm was not unloaded until ready to shoot.

**In our opinion, it is hard to believe that this accident could have occurred as stated. The bolt on a Benelli shotgun will not lock to the rear when there is ammunition in the magazine.*

Case 4
September 2007
Eastern Region
Cause: Carelessness

A Wildlife Services Technician suffered a self-inflicted wound to her leg while using an air rifle. The employee, who had been shooting at pigeons, stopped to allow an oncoming vehicle to pass. The air rifle was held behind her to shield it from view, and as the rifle was brought back into service, it discharged, striking her left leg just above the ankle.

***Conclusion**: The following Wildlife Services Firearm Safety Rules were violated:*
Employee failed to keep firearm pointed in a safe direction
The firearm was not unloaded until ready to use
Employee did not keep her finger off the trigger until ready to shoot

Case 5
December 2006
Western Region
Cause: Carelessness

A Wildlife Specialist suffered serious injury when he was struck in the leg when a round discharged from his issued Remington 700, The employee was conducting coyote control operations, and was collecting a blood sample from a coyote he had just taken. He stated that he was reaching behind himself to grasp the frame of the rifle to un-sling it, but inadvertently made contact with the trigger. Employee suffered injury to his left leg.

***Conclusion**: The Following Wildlife Services Firearm Safety Rules were violated:*
Employee failed to keep his firearm pointed in a safe direction
Employee failed to keep his finger off the trigger until ready to shoot
The firearm was not unloaded until ready to use

Case 6
July 2008
Eastern Region
Cause: Carelessness

Damage occurred to a government owned Remington 11-87 shotgun while in use by a Wildlife Services Technician. While shooting, a plastic wad did not clear the barrel and another round was fired, causing a rupture in the end of the shotgun's barrel. No injuries were reported.

***Conclusion**: No Wildlife Services Firearm Safety Rules were violated.*

**Better knowledge of common ammunition malfunctions may have prevented this. i.e.(squib load procedures)*

Accident Review

Case 7
September 2007
Western Region
Cause: Ignorance

An AWC suppressor suffered damage while being used by an Assistant District Supervisor. The suppressor had operated properly for three shots, on the fourth one, a perceptible delay occurred, followed by an explosion. AWC could provide no information as to regards of the possible cause. No injuries were reported.

Conclusion: *No Wildlife Services Firearm Safety Rules were violated.*

**Several factors may have contributed to the incident, such as improper cleaning with flammable materials, and shooting 17HMR ammunition (which is higher pressured) in a .22 caliber suppressor.*

Accident Review and Incident Summary

Combinations of telephone and in person interviews were conducted with regard to each listed accident or incident. Interviews included affected employees, supervisors and State Directors. Information received in interviews matched the statements given in the original accident reports.

Possible Causes: *Cases 1-5 could have been prevented had Wildlife Services Firearm Safety Rules that are already in place, been followed. Our findings concluded that the two firearms incidents cases 6 and 7 might not have been preventable under working conditions.*

Recommendation: *Wildlife Services Employees must adhere to all of the basic rules of firearms safety. In addition to following these rules, it must become second nature for employees to utilize the safeties on their firearms. While a safety is a mechanical device that can fail, none of the firearm accidents was a result of this happening. All five accidents could have been prevented if the affected employee had utilized the safety on their firearm. In addition, shotguns that are to be used by WS Employees must be capable of locking to the rear. If a procedure calls for locking the bolt to the rear to check for a clear chamber and the bolt cannot be locked to the rear without unloading the magazine, then the first procedure must be to unload it. Being able to determine whether a shell is chambered in a shotgun by locking the bolt to the rear is crucial for firearm safety. It is very important that proper training accompany each firearm that is to be used prior to its issuance to employees.*

Firearm Safety Review Summary

Wildlife Services provides Federal leadership in managing conflicts with wildlife. Human-wildlife conflict is and will continue to be a major issue as humans encroach upon wildlife in their natural habitats. While wildlife management employs the use of many tools to minimize this conflict, the most effective tools used for control and management are firearms. Firearm use is especially important when immediate action is necessary to protect the lives of others, or to minimize risk such as the damage to aircraft. Wildlife damage to aircraft is not only costly but can also be hazardous to human life. It is therefore imperative that WS employees be highly skilled in their use of firearms.

As urbanization continues to increase, so will the human-wildlife conflict. Wildlife Services finds itself faced with the challenges of hiring and training new employees, as well as providing refresher training to current employees. This task is made even more difficult as fewer employees have the background in hunting, trapping or general firearms use. The past necessity of hunting to put food on the table rarely exists today. Hunting has become more of a pastime or sport, which has also become increasingly difficult to pass down from parent to child because of legal restrictions and land development issues. The number of places available for recreational shooting has declined which further adds to this dilemma. Wildlife Services is being faced with the possibility of hiring Biologists or Field Employees with little or no firearm experience. This further demonstrates the importance of having a sound firearms training program that will meet the needs of both the beginner and experienced shooter.

During our initial site visit we met with the Chairman of the Firearms Safety Committee who stated, "Wildlife Services' goal is to be at the forefront in firearms safety among all government agencies". Upon completion of the review, it was apparent that Wildlife Services is an agency with employees that share this same goal, who demonstrate a willingness to learn and who have a genuine desire to act in a safe and responsible manner.

Wildlife Services has implemented a comprehensive firearm safety program for its employees, resulting in well- trained staff, employees that are knowledgeable with the safe use, transport, and storage of firearms, and the ability to perform their jobs with a high degree of competence. When compared to employees of other federal and law enforcement agencies, WS Field Employees discharge their firearms significantly more on a daily basis. While it was difficult to calculate from the WS data that is presently recorded, it is noteworthy, that the number of

firearm related incidents, relative to the number of rounds fired, is disproportionately low. On the rare occasion that a firearm incident occurs, it is generally the result of an employee failing to comply with WS stated policies and procedures, or failing to exercise the fundamental rules of safe gun handling.

Strict adherence to these rules, a continued emphasis on training, and an active and well documented training program in each State will minimize the chances of further firearms incidents.

Demonstrating the importance of these principals (through actions and attitude) at each of the various levels within Wildlife Services will help to ensure that this goal continues to be met.

Recommendations for the WS Safety Review

1. *Wildlife Services firearm safety training should be standardized. The NRA is the only Nationally recognized Firearm Safety Training organization. WS should adopt the use of NRA certified Instructors, use of NRA curriculum (to include their 3 fundamental safety rules) and certification for Pistol, Rifle and Shotgun, NRA proficiency standards, NRA Testing, and NRA certification for WS employees. Additional state related firearm safety training may be added such as information regarding concealed carry laws.*

2. *The Firearm Safety Committee should be tasked with devising a system to track all firearm related accidents, incidents and safety violations, regardless of whether injury or property damage has occurred. A toll free anonymous hotline should be instituted in addition to other reporting mechanisms. The committee should develop an investigative process to respond to reports of unsafe firearm situations. Guidelines should be developed for stricter disciplinary action regarding firearm accidents/incidents to include mandatory drug testing and retraining.*

3. *WS Directives should clearly address whether shooting out of vehicles is allowed. Additionally, directives should clearly address what is defined as "out of vehicles" e.g. muzzle out window, person completely out of vehicle. If shooting out of vehicle is indicated, a procedure for transporting the firearm while in pursuit of wildlife should be clearly addressed.*

4. *Firearms should be transported in vehicles in an approved rack system or hard sided case. When use is not imminent the bolt should be locked to the rear, magazines removed or empty and safeties on.*

5. *All firearms that are used in WS job capacity should be inspected annually. All work performed on these firearms should be initially approved by the State Director and the work should be conducted only by a certified gunsmith. Firearms should be inspected periodically to ensure proper functioning of actions and safeties.*

Listing of all Firearms Reviewer Recommendations

Directives, Manuals and Operating Procedures (DMP)

1 WS Directive 2.615 WS Firearm Use and Safety

- Trigger locks should be used when no safe, vault or cabinet is available for storage. Use of safeties is paramount to safe gun handling and should always be on when firearms are not in immediate use. (same as EFM-6)
- Vehicles should be equipped with a rack or storage device that securely holds the firearm until it is ready for use. The rack should be of a design that allows for easy access and that allows the action to be locked open. Muzzle down floorboard racks are recommended. (same as EFM-7)
- The Benelli shotguns in use by many of WS field employees cannot be locked to the rear while there are shells in the magazine so there is no way to visually tell that that a shell is not chambered. This is an unsafe practice, and should be addressed. (same as EFM-8)
- The State Hunter Safety Course or other approved firearms safety-training course must include a live fire segment. A dated copy of this certificate should be required and retained in personnel files. It should not be deemed acceptable to waive WS firearm safety training for any reason. All new employees should not be issued firearms until they have completed WS Firearm Safety Training. (same as TP-13)
- Firearm and Pyrotechnics training should be separate, and taught free of the distractions and limitations encountered during a "State Meeting". Curriculum from a nationally recognized organization should be implemented with the addition of other pertinent State firearms training information such as the inclusion of Federal, State and Local Firearm Laws and other relevant training. Live fire should be mandatory. (Same as TP-14)
- Directives should be as specific as possible when addressing firearm safety issues especially when involving firearms in a vehicle. Reducing confusion by exacting specific procedure will help to insure safe gun handling in and out of vehicles.
- All employees that use firearms should be drug tested prior to employment. In addition, if a firearms related incident/accident occurs, drug testing should be mandatory.

2 WS Directive 2.625 Pyrotechnics, Rocket Net Charges, and Incidental Explosive Materials

- Pyrotechnic training needs to be part of the Firearms Training Program conducted on an annual basis. Training should take place prior to using in the field. (same as TP-15)
- Pyrotechnic ammo should be carried in IME-22 containers as required in the directive. (same as TP-16)
- Fire extinguishers should be tested on an annual basis to assure workability. (same as EFM-9)

3 Directives should clearly address shooting firearms and pyrotechnics out of vehicles.

4 WS Directives should clearly address whether shooting out of vehicles is allowed. Additionally, directives should clearly address what is defined as "out of vehicles" e.g. muzzle out window, person completely out of vehicle. If shooting out of vehicle is indicated, a procedure for transporting the firearm while in pursuit of wildlife should be clearly addressed.
5 The SOP's and Guidelines need to remove some the ambiguity from firearm safety issues. Some of these issues are "shooting from a vehicle", "when a firearm is considered safe or unloaded", "safest way to transport", "storing pyrotechnics in the same container as primers (ignition source)", etc.
6 Revise the SF 182, or devise a different form altogether, to make it less time consuming to fill out.

Management and Administration (MA)

1 The Firearm Safety Committee should be tasked with devising a system to track all firearm related accidents, incidents and safety violations, regardless of whether injury or property damage has occurred. A toll free anonymous hotline should be instituted in addition to other reporting mechanisms. The committee should develop an investigative process to respond to reports of unsafe firearm situations. Guidelines should be developed for stricter disciplinary action regarding firearm accidents/incidents to include mandatory drug testing and retraining.
2 Adopt the easy 3 NRA Firearm Safety rules to prevent confusion and simplify: 1. Always point the gun in a safe direction. 2. Keep finger off the trigger until ready to use. 3. Keep the gun unloaded until ready to use. Provide specific procedures (removing latitude) for firearm safety issues such as the safest way to transport a firearm when use is imminent.
3 Corrective Action relative to firearm safety incidents should be perceived with greater importance not just by the person(s) involved directly in the incident but also by all of the employees in the State. It should be viewed that any incident affects the reputation of the entire State, all of its employees and the entire Agency.
4 Provide direction and funding for the Firearms Committee. Establish an information sharing process. This could be as simple as providing a list of firearms trainers' phone numbers or starting a forum strictly used for exchanging ideas.
5 Supervisors and State Directors should attempt to "ride along" with each field employee at least annually. (same as C-6)
6 If a Coordinator is appointed to make recommendations for safety improvements then State Directors and Supervisors should try to implement the recommendations, to the extent that they are reasonable and cost effective, otherwise the program is ineffective. (same as SS-1)
7 Wildlife Services employees must adhere to all of the basic rules of firearms safety. In addition to following these rules, it must become second nature for employees to utilize the safeties on their firearms.

Training Program (TP)

1 Wildlife Services firearm safety training should be standardized. The NRA is the only Nationally recognized Firearm Safety Training organization. WS should adopt the use of NRA certified instructors, use of NRA curriculum (to include their 3 fundamental safety rules) and certification for pistol, rifle, and shotgun, NRA proficiency standards, NRA testing, and NRA certification for WS employees. Additional state related firearm safety training may be added such as information regarding concealed carry laws.

2 Firearms safety materials and training should be uniform for all Wildlife Services employees, regardless of where the training takes place. The only way to ensure this, would be to make the WS Firearm Safety Training Manual more comprehensive, create a stand alone Firearms Safety Training Lesson Plan, or to utilize the materials already in place by a nationally recognized institution (e.g. the NRA) with the addition of materials relevant to Wildlife Services (such as pyrotechnic use, shooting from vehicles, dispatching wildlife in traps etc.).

3 Provided that employees initially complete basic rifle, pistol, and shotgun training (e.g NRA Basic Rifle, Shotgun, Pistol courses); training should be required for recertification on an annual basis with the abridged lesson plans such as the NRA First Steps Rifle, Pistol, Shotgun. All field employees that use any type of firearm should be required to meet a proficiency level or qualification. Documentation of this should be retained in the employee's file. Employees should not be issued any firearm for which they cannot attain minimum proficiency.

4 Require training and recertification on an annual basis. New employees should not be issued firearms until they have completed a firearms training program (this could even be arranged through an NRA Instructor outside of the agency). This is more important than has been in the past because of the diminished skill level of applicants. Require a minimum proficiency shooting level for shotgun, rifle and handgun. These firearms should only be issued to those that meet or exceed the minimum proficiency levels.

5 Control of firing line should include the use of loud, consistent commands.

6 The State Hunter Safety Course or other approved firearms safety-training course must include a live fire segment. A dated copy of this certificate should be required and retained in personnel files. It should not be deemed acceptable to waive WS firearm safety training for any reason. All new employees should not be issued firearms until they have completed WS Firearm Safety Training. (same as DMP-1)

7 Firearm and Pyrotechnics training should be separate, and taught free of the distractions and limitations encountered during a "State Meeting". Curriculum from a nationally recognized organization should be implemented with the addition of other pertinent State firearms training information such as the inclusion of Federal, State and Local Firearm Laws and other relevant training. Live fire should be mandatory. (same as DMP-1)

8 Pyrotechnic training needs to be part of the Firearms Training Program conducted on an annual basis. Training should take place prior to using in the field. (same as DPM-2)

9 Pyrotechnic ammo should be carried in IME-22 containers as required in the directive. (same as DPM-2)

Additional Safety Staff (SS)

1 If a Coordinator is appointed to make recommendations for safety improvements then State Directors and Supervisors should try to implement the recommendations, to the extent that they are reasonable and cost effective, otherwise the program is ineffective. (same as MA-7)

Equipment, Facilities and Maintenance (EFM)

1 All firearms that are used in WS job capacity should be inspected annually. All work performed on these firearms should be initially approved by the State Director and the work should be conducted only by a certified gunsmith. Firearms should be inspected periodically to ensure proper functioning of actions and safeties.
2 Firearms used in the performance of Wildlife Services duties should not be modified without the approval of the State Director. Any modifications must be made by a certified gunsmith.
3 Inspection of all firearms should be conducted at least annually.
4 Firearms should be transported in vehicles in an approved rack system or hard sided case. When use is not imminent the bolt should be locked to the rear, magazines removed or empty and safeties on.
5 Trigger locks should be used when no safe, vault or cabinet is available for storage. Use of safeties is paramount to safe gun handling and should always be on when firearms are not in immediate use. (same as DMP-1)
6 Vehicles should be equipped with a rack or storage device that securely holds the firearm until it is ready for use. The rack should be of a design that allows for easy access and that allows the action to be locked open. Muzzle down floorboard racks are recommended. (same as DMP-1)
7 The Benelli shotguns in use by many of WS field employees cannot be locked to the rear while there are shells in the magazine so there is no way to visually tell that that a shell is not chambered. This is an unsafe practice, and should be addressed. (same as DMP-1)
8 Fire extinguishers should be tested on an annual basis to assure workability. (same as DMP-2)

Databases and Tracking Systems (DB)

1 Devise a tracking system for these incidents that fall outside of the damage to person or property guidelines. This could be accomplished with an 800-phone number to report firearm safety violations. The firearms committee would then decide whether an investigation or inquiry is needed and proceed accordingly. In addition, a tracking system may help to identify trends as well as inherently faulty equipment.

Culture (C)

1 The award program should be better defined to address the criteria to be nominated and what the award means for the recipients. It may also be beneficial for a specific firearm safety award to be instituted. Safety and Health Council Coordinators recommendations should be given weight.
2 As the responsibilities of supervisors and State Directors grow, they need to be careful not to allow their focus regarding firearm safety to shift or become diminished.
3 Provide direction and funding for the Firearms Committee. Establish an information sharing process. This could be as simple as providing a list of Firearms Trainers' phone numbers or starting a forum strictly used for exchanging ideas.
4 States should develop a sharing information system relative to firearm incidents. While some States may be reluctant to share such information the benefit far outweighs any of the negatives associated with having an accident or incident. Perhaps the Firearms Safety Committee could facilitate this. (same as MA-4)
5 Display firearm safety posters and other visual safety information to reinforce safety on bulletin boards, safes and in vehicles both in the State and Field offices.
6 Supervisors and State Directors should attempt to "ride along" with each field employee at least annually. (same as MA-6)

Hazardous Materials (Laboratory /Manufacturing Chemical and Biological Materials) Safety Report

USDA APHIS Wildlife Services Safety Review

Prepared for:

USDA Animal and Plant Inspection Service
4700 River Road, Unit 55
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Prepared by:

Federal Occupational Health
U. S. Public Health Service
Denver, Colorado

May 12, 2008

Introduction

Federal Occupational Health (FOH) inspected USDA APHIS Wildlife Services facilities in fulfillment of the USDA APHIS Wildlife Services Safety Review, Hazardous Materials with Disease Component, as part of Wildlife Service's Program Wide Safety Review. The work was performed under interagency agreement No. A129549 (8/31/07), Statement of Work S120655. The review of this component was performed by James E. Dennison, Ph.D., CIH for FOH between January and March, 2008. Pertinent policies and documents were reviewed, and procedures and equipment for storage, inventory, use and disposal of chemicals and biological hazards, employee adherence to policy and safety procedures, use of personal protective equipment, and other applicable safety elements were reviewed.

Different Wildlife Services facilities that were reviewed have very different missions, staffing, and potential hazards. Overall, safety programs at the facilities are strong, comprehensive, and generally well implemented. No major program gaps or concerns were found. Environmental health and safety (ESH) programs can never be perfectly implemented in any organization; thus, the expectation is that they perform on a satisfactory level and strive for continual improvement. ESH programs met the satisfactory level overall but have several areas where improvement can be made. These are noted in the following discussion and recommendations. First, general observations and recommendations are presented for Wildlife Services as a whole. Subsequently, detailed observations, discussion and recommendations specific to two facilities that were inspected (the National Wildlife Research Center in Fort Collins, CO and the Pocatello Supply Depot in Pocatello, ID) are offered.

Trapping Operations

Trapping operations could not be included in the review, as they were not being performed at any facility during the time of the inspection. However, animal bites are one of the more common reportable injuries experienced by Wildlife Services staff, so potential improvement should be sought.

- Recommendation # 1. Conduct an occupational health inspection of trapping when this activity resumes.

Chemical Hygiene

Chemical hygiene (laboratory health and safety) practices were generally very good where laboratories existed. Proper laboratory work practices were followed to a high extent. Manager's were properly concerned with hygiene, and health and safety officers were experienced and appeared to have appropriate authority to deal with issues. Staff appeared to be generally knowledgeable about laboratory hazards, equipped to avoid and minimize hazards, and properly trained. Ventilation is discussed separately.

The written plans for chemical hygiene were not well defined and the following improvements are suggested.

- Recommendation #2. Address work practices and identify the Chemical Hygiene Officer (CHO) in any Chemical Hygiene Plans that do not include these.
- Recommendation #3. Review ESH SOPs annually and update or re-approve.

Training Programs

The review addressed environmental, safety and health training only; training for other purposes (e.g. security) was not reviewed. Overall, training programs were fragmented to some degree. There were a number of training classes that were provided, but not in a systematic manner in terms of content and frequency for refresher courses (if needed). Some areas and employees received training at different times and it was not typically renewed on a periodic basis. Mock spill or incident trainings would be advised for high hazard areas. Therefore, some improvements could be made, including:

- Recommendation #4. Formalize training programs for each facility or common job type in an SOP including initial and on-going training for each area.
- Recommendation #5. Job hazard analysis should be conducted for each potentially hazardous task. For those where hazards are indicated by job hazard analysis, safety procedures should be developed by the facility's safety manager in cooperation with the project manager for the activity where a hazard exists.
- Recommendation #6. Safety managers should make periodic inspections of areas where hazards exist to verify that work practices and controls are properly implemented. These inspections should be documented.

Exposures and Medical Monitoring

No significant issues were observed with respect to exposure to chemicals and biological agents that exposure assessment testing or additional medical monitoring would be needed to address.

Chemical inventory and Labeling

Chemical inventory systems varied in quality and implementation. In some cases, the system was computerized and in other cases, a manual system was in-place. Where inventory was computerized, on-going efforts to verify its accuracy should be continued. If no computerized system exists, developing one appeared to be feasible and would likely result in time savings and improvements in accuracy over the medium to long term horizon.

- Recommendation #7. Develop computerized inventory systems where they are not in place at this time.

Labeling was generally good but not always universal. Occasional examples of missing "Date Opened" and "Date Expired" labels were also observed. A draft labeling SOP is an improvement and should be completed. As this is in progress, a formal recommendation would be redundant.

Waste Management

Waste management operations also appear to be appropriate and compliant with USEPA and DOT requirements.

Hazard Communication and MSDSs

Material Safety Data Sheets (MSDS) appear to be properly handled, but the difficulties of keeping MSDS up-to-date in each facility or part of each facility with so many always-changing inventories of chemicals was evident. Where computerized inventory systems are in-place, it would be much more efficient and complete to develop a sub-system for MSDS management. By appropriate cross-referencing, the inventory system could ensure that an MSDS is available for every chemical in the inventory, ensure their availability to users, and purge them when the chemical is removed from the system, as well as save a lot of unnecessary paper waste. This recommendation could be implemented in the future if APHIS or USDA is planning to revamp the system at a higher level.

- Recommendation #8. Implement an on-line MSDS system for facilities with computerized inventory systems. This should be integrated into the USDA-wide chemical inventory system, provided that system is not years in the future.

- Recommendation #9. Update SOP for Hazard Communication to reference all products that include hazardous chemicals "including products obtained from sources other than traditional chemical suppliers."

Ventilation Systems (Chemical or Laboratory)

Generally, ventilation systems were sufficient for the stated purposes. In most cases, annual recertifications were up-to-date, but each facility should make sure that all chemical fume hoods and biological safety cabinets (BSCs) are recertified. A few cases where use restriction labels or certification labels were missing were noted to the on-site representative and should be addressed. Some hoods and BSCs have HEPA filters on supply and/or exhaust air. There were no criteria available for when pre-filters and HEPA filters needed to be changed. This should be clarified in an SOP. A system for assigning responsibility for checking the changes of the filters and documenting work performed on the systems should be developed.

- Recommendation #10. Investigate operational parameters for pressure drop on the HEPA filter, a means of checking for proper pressure drop, changes schedules for pre-filters and HEPA filters, and recordkeeping of these.

National Wildlife Research Center Site Visit

A site visit was conducted to inspect relevant areas of the National Wildlife Research Center (NWRC) located at 4101 LaPorte Ave., Fort Collins, CO. Included in this inspection were all research areas and any related areas where chemicals are used, stored, or disposed of. The site visit was conducted by James Dennison, CIH, for Federal Occupational Health (FOH). The site visit was led by Mr. Steve Greiner and Mr. John Eisemann of USDA APHIS Wildlife Services NWRC. The visit was conducted from March 24-26, 2008.

The purpose of the site visit was to review the safety program for laboratory and manufacturing chemicals and biological agents. This included review of pertinent standard operating procedures (SOPs), agency directives, internal written policies, manuals, and written plans, as well as inspecting the facility and operations within the facility for conformance to written programs and OSHA and EPA requirements. Assessment of conformance to Good Laboratory Practices or Good Manufacturing Practices was not included.

In this site visit report, various comments and recommendations have been made. Some comments that are observational or concern minor matters have not been formalized into a recommendation due to the small scope of the observation, or because they are covered by a broader recommendation made elsewhere in the report. Some other observations are covered by an optional action if there are different choices that can be made or the outcome of the problem resolution depends on information that is not available at this time. However, significant observations with formal recommendations are noted in bulleted text.

Document Review

The following documents were reviewed in connection with NWLC.

1. Current Standard Operating Procedures
2. Approval and training for BSL-3 workers and visitors (AD016.01 23 July 07)
3. BSL-3 Employee clearance database
4. NWRC Biosecurity Plan, dated 5/10/07
5. OSHA 300 logs 2002 – 2007
6. NWLC Laboratory Training, memo dated 11 Aug 2003
7. NWRC Chemical Hygiene Plan (includes SOPs for Chemical Spills, Shipment Dangerous Goods, Respirators, PPE, Hazardous Waste, HazComm, Chemical Inventory, and Fume Hoods).
8. WS Directive: Mission and Philosophy of the WS Program
9. WS Directive: NWRC (2.115)
10. WS Directive: Compliance with Federal, State and Local Laws and Regulations (2.210)
11. WS Directive: Safety (2.601)
12. WS Directive: WS Safety and Health Program (2.605)
13. Labeling Requirements SOP (draft)

14. Housekeeping SOP (draft)
15. Approval and training for BSL-3 workers and visitors SOP (AD016.01)
16. Use and Maintenance of the Sterilmatic Autoclave (IE 033)
17. BSL-3 Laundry Procedures (HS021.00)
18. Shipment of Biological Substances, Animal Specimens, and Environmental Test Samples (HS 013.02)
19. Standard and Special Practices, Safety Equipment, and Facility Procedures for Biosafety Level 2 Laboratories (HS 012.00)
20. Inventory and Storage Procedures for BSL2 Agents and Diagnostic Samples (BT 013.01)
21. OSHA Form 300, 2002-2007

Other than as noted below, the directives and SOPs appear to adequately address safety concerns at the facility.

Laboratory Chemical Hygiene

Numerous aspects of laboratory health and safety are well managed at NWRC. Exceptions are noted below, where they were observed. A chemicals hygiene program is administered by NWRC, with Mr. Steve Greiner as the Chemical Hygiene Officer (CHO). A written Chemical Hygiene Plan (CHP) is available. However, the CHP appears as a compilation of disparate SOPs covering many of the topical areas that a CHP should cover. The plan does not appear to address "work practices" adequately, and the CHO is not designated in the plan. Optionally, the SOPs could be integrated into a coherent plan, but the extant plan is probably acceptable as is. A policy that the SOPs themselves should be reviewed and updated or re-approved annually has reportedly not been adhered to. This should also be addressed.

- Recommendation #11. Address work practices and CHO in the Chemical Hygiene Plan.
- Recommendation #12. Review SOPs annually and update or re-approve.

Fume Hoods and Biological Safety Cabinets

Late model fume hoods and biological safety cabinets (BSC) were present in numerous labs. Most hoods were vented through dedicated exhausts through roof-mounted manifolds and fans with appropriate stack heights. The hoods generally all appeared clean and reasonably free of excess equipment. The hoods appeared to be sufficient for work purposes at the time of the inspection. Users appeared to use hoods properly and were familiar with use practices. The hoods and BSCs had been re-certified (tested) within the current twelve month period and labeled as passing the testing. The individual who performed the certification is currently accredited through the National Sanitation Foundation for certification of BSCs. One BSC was removed from service and another was missing a re-certification sticker (see below). There were use restrictions on two other fume hoods (see below).

Other Safety Resources

Labs and work areas appeared very well provisioned with spill cleanup supplies. Eye washes and showers were frequently present, and were reportedly tested quarterly. No issues noted.

Training

Various safety training is currently being performed, but the content of the training program is not as complete, regular, and well-defined as it should be. Training curricula needs to be flexible to allow changes or added content as deemed appropriate, yet a basic minimum set of instructional materials needs to be more clearly defined. Three types of training intervals can be envisioned: training for new hires, on-going training, and special training. NWRC is in the best position to determine the exact training content for new hires, but a suggestion would include: Laboratory safety, Respirators (for some), Personal Protective Equipment, Hazardous Waste, Inventory and Labeling, Spills, and Hazard Communication. The content can be customized for staff in different areas of the laboratory, and can be a combination of formal and on-the-job training.

On-going training should include at least Spills. Personal Protective Equipment. Respirators (for some), Hazard Communication, as well as other training deemed relevant. Special Training would cover new hazards or project-specific hazards. Obviously, some areas, including BSL-3, require additional specialized training.

It was apparent that some of these training elements were not completed with some staff. Moreover, it seemed that training was more complete in the Analytical Chemistry Project area than with some staff in other labs. Some of this training is alluded to in a memo dated August 11, 2003 (referenced above), but this memo did not constitute a clear description of what initial and on-going training was appropriate for each lab area. This lack of clarity could be addressed with a training SOP.

On-line training via "AgLearn" may be useful for on-going training needs. It is recommended that any on-line training be supplemented with formal access to live instructors or practitioners to help answer site-specific questions and with quizzes or some means to assess uptake of critical parts of the training.

Project-specific training is provided at the start of a project. The project manager determines what safety precautions are needed for a particular project. At a minimum, safety procedures for each project should be reviewed and approved by the CHO, if not developed by the CHO in concert with the project manager. For highly hazardous operations, the CHO should make periodic inspections to verify that work practices, equipment, etc. are following the plan and that employees are following all required procedures. These inspections should be documented.

- Recommendation #13. Formalize training program in an SOP including initial and on-going training for each lab area.

- Recommendation #14. Safety procedures for each research project should be developed by the CHO, jointly by the project manager and CHO, or by the project manager with review and approval by the CHO.
- Recommendation #15. CHO should make periodic inspections of laboratory areas where highly hazardous agents may be present to verify work practices and controls are properly implemented. These inspections should be documented.

Resources

NWRC has a unique mission and is a unique facility. The CHO, Mr. Steve Greiner, appears to be quite knowledgeable and active in many disparate aspects of the environmental, health, and safety programs, as well as a participant in work outside the facility. Many of the routine tasks within the facility do not require the depth of knowledge of an experience environmental professional and could be handled by more junior personnel, freeing up senior personnel time for dealing with more complex issues. The amount of time required to implement and provide on-going support for a program as complex as that at NWRC should be expected to exceed the available time for a full-time position. Therefore, complete implementation of the programs that exist, along with the recommended additions, would require additional resources. A part-time position should be funded at a junior level to leverage the existing CHO's time to implement the program. If existing staff at NWRC is not available for this, another option includes the possibility of bringing an undergraduate or graduate student/intern from the Environmental Health Department at Colorado State.

- Recommendation #16. Provide junior level support to the CHO.

Exposures and Medical Monitoring

Exposure potential to traditional chemical agents appears to be slight. No operations appeared to have sufficient exposure potential to possibly exceed OSHA Permissible Exposure Limits or ACGIH Threshold Limit Values, for chemicals that have these limits. More esoteric chemicals, as well as biological agents, are used. For these chemicals and agents, numerical exposure guidelines rarely if ever exist, and test methods to assess exposure (usually airborne, therefore air sampling methods would be needed) usually don't exist. Therefore, prudent practice generally revolves around using hygienic methods for handling these agents. As far as could be ascertained, all toxic and hazardous agents were handled in fume hoods whenever exposure was possible. Reportedly, all SOPs and research plans incorporate the latest guidance on handling such agents in laboratory settings, but the toxicity of some of the agents (e.g., samples that may contain Avian Influenza Virus) underscores the need to continue the current program of updating SOPs and research plans and following the latest guidance.

Chemical inventory

The chemical inventory system at NWRC appears to be nearly comprehensive and relatively well-followed. The facility follows an inventory system (CMITS) that offers a means to

keep track of all hazardous chemicals at the facility. Chemicals are logged into the system when received at the facility. Periodic reviews are done to keep the inventory reasonably up-to-date.

Waste Management

Waste management operations also appear to be appropriate and compliant with USEPA/Colorado/DOT requirements. Each satellite waste accumulation station appeared to have proper lists of wastes added to containers. Compliance with recording such wastes appeared to be excellent. Chemical and biological wastes as well as sharps appeared to be properly managed.

MSDSs

Hard copies of MSDS appeared to be adequately available to staff in labs and areas where chemicals were present. Staff appeared to be aware of their location and availability. Reportedly, the MSDS system is being updated by USDA. For a facility such as NWRC, where there are hundreds of different chemicals coming into and out of inventory and use, and different labs have and use different chemicals, and these change frequently, it is extremely time consuming and impractical to maintain complete MSDS records in every lab. Also, all staff has access to computers and the NWRC network. Thus, this facility is ideal for an on-line MSDS management system. Such a system would allow any user rapid access to any MSDS. The on-line database of MSDS can be updated with relative ease from the chemical inventory system, which is already translated into a computer database. Such an on-line system therefore would not only be much more efficient, but much more complete.

- Recommendation #17. Implement an on-line MSDS system for NWRC. This should be integrated into the USDA-wide chemical inventory system, provided that system is not years in the future.

Consumer products are not completely integrated into the system, even when they may contain hazardous ingredients.

- Recommendation #18. Update SOP for Hazard Communication to reference all products that include hazardous chemicals "including products obtained from sources other than traditional chemical suppliers."

Labeling was generally good but not always universal. Occasional examples of inappropriate labels were seen (Photo #19; 26; 39). Occasional examples of missing "Date Opened" and "Date Expired" labels were also observed. A draft labeling SOP is an improvement and should be completed.

Analytical Chemistry Project (ACP)

Overall, the labs in ACP appear to be well managed and maintained from health and safety aspects. About 40 staff members work in ACP, although many are not in ACP at any one

point in time. Regular training is not done, but training is provided for new hires and periodically thereafter.

BSL-2 Laboratories

At NWRC, there are five groups of laboratory rooms that are designated as Biological Safety Level 2 (BSL-2). These BSL-2 labs were inspected for conformance to CDC guidelines for BSL-2 labs, per the CDC Lab Biosafety Level 2 Checklists. These checklists were either filled out during the inspection or by the lab manager at a later date. No significant findings were reported. Microbiological work practices and equipment were in conformance with CDC guidelines where applicable. This includes procedures for handling sharps, needles, and cleanup (including personal hygiene and personal protective equipment) after work procedures occur. Access restrictions to the labs were adequate. Disposal procedures for infectious agents met the requirements for the current agents in terms of disposal, autoclaving, etc. SOPs were developed and were available for all aspects of the work although training aspects have been mentioned elsewhere. Overall, lab ventilation was in excellent condition, although minor corrections have also been mentioned elsewhere.

BSL 3 Lab

The lab was recertified in January 2008. No studies were on-going at the time of the site visit, but future studies involving West Nile Virus and other agents are in planning stages. Therefore, it was not possible at this time to review entry and exit procedure adherence. The procedures were reviewed in description and appear to be consistent with guidelines. Review of the design and construction of the BSL-3 lab and the operations, calibrations, and certification of the lab was outside the scope of the present assessment.

According to the SOP "Approval and training for BSL-3 workers and visitors," AD016.01, 23 July 07, various training must be conducted for staff employees who enter the BSL-3 lab. Appropriate recordkeeping forms are attached to the SOP for tracking the training. However, it is not indicated that refresher training is required or performed. Also, a simpler means of tracking staff that is out of date for vaccinations or training can be included. If refresher training is to be conducted, or if vaccination boosters are needed, the interval should be indicated in the Employee Database. Insert fields in the database that indicate "Next Training Due," and "Next Vaccination Due." These can be programmed in as a formula that relates to the initial completion date and required time interval. Finally, a final field may be added that either indicates "Everything complete through date" or "Employee up-to-date (Y/N)." This can also be programmed as a logical field that takes all compliance requirements into account. The advantage of adding a final field that reflects whether an employee is up to date on everything depends on how many compliance items are in the database. If there are several items, it may be difficult to reliably check every compliance date without missing an elapsed entry.

NWLC has completed mock incident training in the BSL-3 lab. This is a critical aspect of the training program and should be formalized in the SOP as training requiring a repeated exercise at some predetermined frequency (e.g., annually). Responsibility for review of the

security, training, and vaccination records should be assigned to a specific person or job functionality with a specific interval. Records of the completion of the periodic review should be kept, either in memo or checklist form.

- Recommendation #19. Conduct refresher training on critical aspects of BSL-3 protocol.
- Recommendation #20 (optional). Insert fields in the database that indicate "next training due," and "next vaccination due." Insert a final field that subsumes all compliance deadlines.
- Recommendation #21. Include mock incident training in the SOP on a periodic basis.
- Recommendation #22. Assign responsibility for periodic review of compliance with the requirements of the SOP. Save all records documenting that the review is completed as required.
- Recommendation #23. Include annual refresher training on critical aspects of the BSL-3 safety program.

At the BSL-3 entrance, magnehelic gauges were present to monitor the air pressure difference between the BSL-3 lab and adjacent areas. The lab is designed to have"negative" air pressure relative to the adjacent areas (lower pressure inside the lab) so that air will flow into the lab instead of out of the lab. The criteria for negative air pressure were not available and not indicated in the SOP. These criteria should be determined and added to the SOP. Moreover, if an alarm system is not present to provide warning of loss of pressure, the magnehelic gauges should at least be labeled with the correct pressure values so that they can be observed at entry time.

Exhaust from the BSL-3 lab is 100% HEPA filtered by a filter bank in the penthouse, and pre-filters are present as well. As with the pre-filters and HEPA filters in the C^{14} lab hood exhausts, filter types and a change schedule should be determined and added to the SOP. Documentation of filter changes needs to be recorded. NWRC should verify that building maintenance accomplishes these tasks on a periodic basis.

- Recommendation #24. Determine the compliance requirements for filter types, filter change criteria, and pressure drops. Include in SOP for operation of the exhaust filter system. Develop recordkeeping on filter changes and (optionally) on pressure drops at BSL-3 entrance and filter bank.

Pocatello Supply Depot Site Visit

A site visit was conducted to inspect the Pocatello Supply Depot (PSD) located at 238 East Dillon St., Pocatello, ID. The site visit was conducted by James Dennison, CIH for Federal Occupational Health (FOH). The site visit was led by Mr. Steve Greiner. The visit was conducted from January 22-23, 2008.

The purpose of the site visit was to review the safety program for manufacturing chemicals. This included review of pertinent Standard Operating Procedures (SOPs), agency Directives,

internal written policies, manuals, and written plans, as well as inspecting the facility and operations within the facility for conformance to written programs and OSHA and EPA requirements (storage, inventory, use, disposal, safety, PPE, hazard communication/MSDS, etc.). Assessment of conformance to Good Laboratory Practices or Good Manufacturing Practices was not included.

In this site visit report, various comments and recommendations have been made. Some comments that are observational, or concern minor matters, have not been formalized into recommendations due to the small scope of the observation, or because they are covered by a broader recommendation made elsewhere in the report. Some other observations are covered by an optional action if there are different choices that can be made or the outcome of the problem resolution depends on information that is not available at this time. However, significant observations are noted with formal recommendations in bulleted text.

At PSD, wildlife damage management materials are manufactured and distributed. PSD is a non-profit entity controlled by the Pocatello Chamber of Commerce, employing four production workers and two administrative employees. In addition, the PSD is managed by a Federal USDA/APHIS employee. The assistance of the federal manager, Ms. Doris Zemlicka, and all of the staff at PSD was very helpful and appreciated during the site visit.

Document Review

The following documents were reviewed specifically in connection with PSD:

22. WS Directive: Mission and Philosophy of the WS Program
23. WS Directive: Pocatello Supply Depot (3.115)
24. WS Directive: Compliance with Federal, State and Local Laws and Regulations (2.210)
25. WS Directive: Safety (2.601)
26. WS Directive: WS Safety and Health Program (2.605)
27. PSD Pollution Prevention Plan, 4/16/07
28. PSD Accidental-Spill Prevention Plan, 3/27/07
29. Environmental Quality Assessment Final Report, dated 12/9/04
30. Industrial Hygiene Exposure Assessment Report, dated 8/2/05
31. Hazard Communication Program

Other than as noted below, the directives and SOPs appear to adequately address safety concerns at the facility. No recommended changes are noted except for the Hazard Communication Program which references Utah, and should be updated.

Inventory

Quarterly reports are made concerning inventory for chemicals of interest, including sodium nitrate. The inventory system for other chemicals is complex, time consuming, and prone to be somewhat inaccurate. PSD may want to consider implementing a system that is more computerized to both simplify the work of keeping inventory control and improve accuracy.

- Recommendation #25. PSD should consider a computerized chemical inventory tracking system.

Training

Training programs include safety, hazardous materials, and hazard communication training. While training appeared to be regular and was documented for 1999-2001, records of training have been sporadic or non-existent since then. A formal training program should be developed, including initial and annual training for inventory, hazardous waste, hazard communication, safety, hazardous waste, respirators and personal protective equipment, and spill control. It is preferable that some of the training be conducted by an on-site instructor so that site specific questions may be asked and answered. It may also be useful to have generic parts of the training offered via video or computer based programs, but in either case, it is beneficial to have content that is assessed at the end with some form of test of competency (i.e., was the critical parts of the material learned?) Records of training should be kept for all initial and annual trainings.

- Recommendation #26. Training program content should be formalized, provided annually or at appropriate intervals, and documented.

Exposure Assessment

Existing hazards have been assessed by Federal Occupation Health in a report dated August 2, 2005. In that exposure assessment, no significant exposures were reported. However, work load varies to a very great extent over the year, so it is unclear whether exposures were monitored on workdays where exposure could be expected to be near maximal. In addition, significant ventilation changes have been made since that time. Exposure for cyanide and strychnine on the days tested were well below OSHA Permissible Exposure Limits (PEL) (as well as corresponding Threshold Limit Values (TLV)). However, the situation for zinc phosphide is less clear. There are no PELs or TLVs for zinc phosphide, so the airborne exposure data were compared to PELs for zinc and phosphorus. Some published information indicates that zinc phosphide is converted in the body to phosphine gas. This may be the mode of toxic action in animals and why the compound can be used for animal control. The TLV for phosphine gas is much lower than that for zinc and phosphorus, so a lower acceptable exposure may be appropriate. The exposure data indicated that a significant exposure is possible, even when the phosphine issue is not considered. Based on this, additional exposure assessment and efforts to determine acceptable exposure levels should be made.

If it is difficult to predict when near maximal exposure will occur, Wildlife Services may consider contracting to have appropriate sampling equipment sent to the site so that monitoring can be conducted on representative days. Additional monitoring for zinc phosphide, cyanide, and strychnine should be done (2-3 days each) and the data analyzed to determine with statistical confidence whether employees are exposed to acceptable levels.

Due to the fact that all of these materials are powders, dusts, or some form of particulate material, wipe samples should be collected to determine whether chemical contamination in areas adjacent to the work areas is excessive. While housekeeping could be improved in some work areas (see below), chemical residues in the actual work area are acceptable as long as excessive and unnecessary levels do not occur. However, significant contamination of adjacent areas should not occur, and wipe samples can be used to determine this.

- Recommendation #27. Exposure to zinc phosphide, cyanide, and strychnine should be monitored again by a 3rd party if possible or, with outside technical support, by the existing staff. Wipe tests for surface contamination should also be conducted.

Chemical Emergencies/Spills

With numerous toxic chemicals present in relatively large quantities and the handling of these materials, small spills are somewhat inevitable and larger ones could also occur. PSD does not have clear guidelines for dealing with this issue. The criteria for the types of chemical spills that can be safely addressed by the on-site personnel needs to be developed. A policy that no spills will be addressed is possible, but impractical for a facility such a PSD. Is it acceptable to clean up 1 g, 10 g, 100 g, or 1000 g of cyanide? Or of zinc phosphide? Or other chemicals? The extent of permissible spill cleanup for each agent should be defined, as clearly smaller spills are addressed and potential spills that could need emergency response might occur. It was unclear whether staff had an SOP for spills. This should be included when addressing the criteria. Spill training would then be needed. In general, adequate spill cleanup supplies were present. Procedures for cleanup would be included in an SOP, (e.g., for a strychnine spill, use a HEPA vacuum).

- Recommendation #28. A formal spill response plan should be prepared that describes the size and extent of spills that will be addressed with in-house staff and the means and methods to be employed. This plan should be part of spill training for manufacturing staff.

Hazardous waste

Minimal hazardous waste was reportedly produced. No issues noted.

General safety concerns

Minor issues with items such as eye wash stations, bottled gases, chemical labeling and storage were discussed with on-site personnel. In general, safety issues appeared to be well managed. No issues noted that warrant specific mention.

Resources

Generally, resources are adequate as evidenced by most programs being adequate. It was reported that in addition to other duties, all of the environmental management duties were handled by the federal manager, including health and safety, inventory, Sara Title III reporting, hazardous waste, and all other environmental aspects of the operation. Many of these aspects require some form of recordkeeping and reporting, and it appeared that some of these records or reports were not complete or timely, due to the difficulty for any manager who does not normally perform these functions. There are a myriad of rules that need to be understood in order to comply with all requirements and while some resources are available to assist the federal manager, they are all off-site. An alternative that should be considered is for PSD to out-source the majority of the non-managerial recordkeeping, auditing, and reporting tasks that don't have to be done on a daily basis to a local consulting firm, if available, who can ensure that all of the deadlines are met with accurate reporting.

- Recommendation #29. PSD should consider out-sourcing environmental compliance work that can be performed on a periodic (e.g. quarterly) basis, while continuing to perform the day-to-day recordkeeping that flows into the in-house periodic compliance report systems.

Summary

Overall, ESH operations at both facilities are in essential compliance with Federal requirements and in conformance to CDC guidelines and other recommended work practice guidelines. With operations that involved so many staff members and diverse work activities that give rise to a myriad of potential hazards, it is not possible to have such a status that no improvements can be made. A number of possible improvements have been described in this report.

Areas with the best performance overall included waste management, operation of BSL-2 and BSL-3 laboratories, written plans and SOPs, exposure controls, medical monitoring, and spill response preparedness.

Areas where some of the improvements could be made generally included in training, inventory management/hazard communication, labeling, ventilation systems, chemical hygiene, and staff resources.

While all of the recommendations should be considered and implemented by Wildlife Services when feasible, the more immediate needs include the following recommendations. With regard to training programs, Recommendations #4-6 will help consolidate safety programs with on-going formalized training, job hazard analysis that incorporates the Chemical Hygiene Officer/Safety Officer for each facility with the activity manager so that input from both sides of the program are incorporated into safety planning, with on-going inspections for conformance to the SOPs.

Recommendations #16 and #29 pertain to staff resources of ESH programs at two Wildlife Services facilities. Providing improved resources as recommended would beneficially augment the existing staff's ability to manage the ESH programs that otherwise exist.

Recommendation #10 (and redundant Recommendation #24) address questions regarding acceptable criteria for operation of the exhaust systems with HEPA filters and tracking programs that should be addressed.

Recommendations #7 and #8 (and subsidiary Recommendations #17 and #25) are overlapping comments regarding apparent challenges Wildlife Services has in keeping track of chemical inventory and MSDS for the myriad of products needed during operations. Improvement in this area would enable Wildlife Services to better keep track of the chemical inventory, update MSDS information, and improve efficiency and accuracy in these processes.

Listing of all Hazardous Materials Reviewer Recommendations

Directives, Manuals and Operating Procedures (DMP)

1 Review Environmental Safety and Health (ESH) SOPs annually and update or re-approve.
2 Review SOPs annually and update or re-approve. (same as DMP-1)
3 Update SOP for Hazard Communication to reference all products that include hazardous chemicals "including products obtained from sources other than traditional chemical suppliers."
4 Update SOP for Hazard Communication to reference all products that include hazardous chemicals "including products obtained from sources other than traditional chemical suppliers." (same as DMP-3)
5 Address work practices and identify the Chemical Hygiene Officer (CHO) in any Chemical Hygiene Plans that do not include these.
6 Address work practices and CHO in the Chemical Hygiene Plan. (same as DMP-4)
7 A formal spill response plan should be prepared that describes the size and extent of spills that will be addressed with in-house staff and the means and methods to be employed. This plan should be part of spill training for manufacturing staff. (PSD)

Management and Administration (MA)

1 Conduct an occupational health inspection of trapping when this activity resumes.
2 Job hazard analysis should be conducted for each potentially hazardous task. For those where hazards are indicated by job hazard analysis, safety procedures should be developed by the facility's safety manager in cooperation with the project manager for the activity where a hazard exists.
3 Safety procedures for each research project should be developed by the CHO, jointly by the project manager and CHO, or by the project manager with review and approval by the CHO. (same as MA-2)
4 Safety managers should make periodic inspections of areas where hazards exist to verify that work practices and controls are properly implemented. These inspections should be documented.
5 CHO should make periodic inspections of laboratory areas where highly hazardous agents may be present to verify work practices and controls are properly implemented. These inspections should be documented. (same as MA-4)
6 Exposure to zinc phosphide, cyanide, and strychnine should be monitored again by a 3rd party if possible or, with outside technical support, by the existing staff. Wipe tests for surface contamination should also be conducted. (PSD)
7 PSD should consider out-sourcing environmental compliance work that can be performed on a periodic (e.g. quarterly) basis, while continuing to perform the day-to-day recordkeeping that flows into the in-house periodic compliance report systems. (PSD)

Training Program (TP)

1 Formalize training programs for each facility (NWRC and PSD) or common job type in an SOP including initial and on-going training for each area.
2 Formalize training program in an SOP including initial and on-going training for each lab area. (same as TP-1)
3 Conduct refresher training on critical aspects of BSL-3 protocol.
4 (optional). Insert fields in the database that indicate "next training due," and "next vaccination due." Insert a final field that subsumes all compliance deadlines.
5 Include mock incident training in the SOP on a periodic basis.
6 Assign responsibility for periodic review of compliance with the requirements of the SOP. Save all records documenting that the review is completed as required.
7 Include annual refresher training on critical aspects of the BSL-3 safety program.
8 Training program content should be formalized, provided annually or at appropriate intervals, and documented. (PSD)

Additional Safety Staff (SS)

1 Provide junior level support to the CHO.

Equipment, Facilities and Maintenance EFM)

1 Investigate operational parameters for pressure drop on the HEPA filter, a means of checking for proper pressure drop, changes schedules for pre-filters and HEPA filters, and recordkeeping of these.
2 Determine the compliance requirements for filter types, filter change criteria, and pressure drops. Include in SOP for operation of the exhaust filter system. Develop recordkeeping on filter changes and (optionally) on pressure drops at BSL-3 entrance and filter bank.

Databases and Tracking Systems (DB)

1 Implement an on-line MSDS system for facilities with computerized inventory systems. This should be integrated into the USDA-wide chemical inventory system, provided that system is not years in the future.
2 Implement an on-line MSDS system for NWRC. This should be integrated into the USDA-wide chemical inventory system, provided that system is not years in the future. (same as DB-1)
3 Develop computerized inventory systems (e.g., chemical inventory, hazardous waste) where they are not in place at this time.
4 PSD should consider a computerized chemical inventory tracking system. (PSD)

Immobilization and Euthanasia Drugs Safety Report

Wildlife Services' Safety Review
Chemical Immobilization and Euthanasia of Wildlife

Final Summary Report

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Executive Summary

Review Process

To assess the degree of safety for Wildlife Services' (WS) in the arena of chemical immobilization and euthanasia of wildlife (I&E), we:

1. Identified the major risks associated with the WS I&E program.
2. Reviewed agency policies, directives, and supporting documents.
3. Reviewed training requirements, procedures, materials, tracking, and enforcement.
4. Visited 4 state programs to observe drug storage and handling, record keeping, field activities, and other pertinent issues.
5. Interviewed WS staff, administrators, and I&E committee representatives.
6. Inquired about and investigated I&E-related accidents.

General Comments

Overall, WS is doing an admirable job of addressing safety risks through their policies, administration, training, field operations, and culture. As we discovered during our state visits, some programs are highly conscientious about safety, while others are significantly less so. It appeared to be an "all or nothing" situation with each state program. Indeed, we expect our findings are reflective of the diversity of attitudes and approaches within the broader agency with respect to safety protocols. Some programs are doing nearly everything correctly and have little room for improvement, but other programs must make significant progress to minimize the risks associated with I&E and create a safe working environment.

In consideration that each program is unique, and that our findings and recommendations must be rectified with the reality in each program, we offer the following analyses and recommendations to increase the level of safety in the WS I&E program.

Principle Risks

1. The greatest risk associated with the WS I&E is accidental and intentional loss or unaccountability of drugs. This can result in risk to the agency, the employees, and especially the public. Addressing this risk includes legally complying with Drug Enforcement Administration (DEA) requirements.
2. The other principal risk is accidental exposure to drugs, which includes direct exposure to field personnel and indirect exposure to the public through consumption of recently drugged animals. Addressing this risk includes legally complying with the Food and Drug Administration (FDA) requirements and providing quality training to develop safe field practices and conscientious attitudes.

Priority Recommendations

Throughout the following review summary, we make a number of recommendations to increase the level of safety in the WS I&E program. However, the following are what we deem the highest priority recommendations for WS, in order of priority, which should be addressed immediately:

1. Conduct unannounced, random, and physical (on-site) inspections of state programs to verify that requirements of drug storage and inventory documentation are met. This will effectively prevent potential drug abuses, sales, or loss and ensure that the legal requirements for DEA are met.
2. Clarify, create, and/or enforce policies regarding: a) veterinary supervision of state I&E programs, b) holding and disposal of empty or expired drug vials, and c) transfer of I&E drugs.
3. Empower an independent entity to track the certification status of employees and evaluate the acceptability of training reported by state directors and other employees to meet certification requirements. This same entity could be responsible for creating and delivering integrated, standardized, and centralized training in the arena of I&E.
4. Create an online clearinghouse of all I&E information pertinent to the WS program, including directives, policies, updates and memos, training curricula, technical information, and other pertinent resources.
5. Increase accountability among administrators, state directors in particular, to ensure safety protocols are followed. This includes accountability for all I&E policies, but in particular issues relating to drug inventories, storage, and documentation, veterinary supervision, and training requirements/certifications.
6. Standardize terminology and format for drug inventory forms. The exact format is less important than that the forms are self-apparent, relatively standardized, and allows for the diversity of individual programs. As a result, we do not recommend a specific format, but recommend the I&E committee create a selection of forms with the input of state directors and others.

Major Risks Associated with the WS I&E Program

Loss or Unaccountability of I&E Drugs

The greatest risks associated with the use of I&E drugs are accidental and intentional loss or unaccountability, which can result in risk to the agency, personnel, and especially the public. These risks are minimized by addressing the following:

1) DEA Licensing

DEA licenses for each state program should be issued to the agency and not to individuals. Each state program must be legally complying with all DEA requirements. This includes physical inspection and verification of drug inventories.

2) Drug Inventory Documentation

Documentation should provide an instant understanding of storage, transfer, and distribution of all I&E drugs in the state program. The principle levels of inventory for the WS I&E program include: state program central storage (located at the same address as the DEA license), drug vial use forms (every drug vial is uniquely labeled) and the Controlled Materials Inventory Tracking System/Management Information System (CMITS/MIS). Paper-based inventories should be used in conjunction with CMITS/MIS.

3) Storage Security

Storage of I&E drugs must be secure at all times and only accessible to authorized personnel.

4) Transfer

Loss of I&E drugs is prevented through proper documentation of transfers and through secure means of physical transport.

Accidental Exposure

The 2nd major category of risks associated with the WS I&E program involves accidental human exposure to pharmaceutical agents. Specific risks include:

1) Direct Exposure to Employees

Accidental exposure to employees involves direct exposure through spillage or accidental injection. This is minimized through proper use and availability of personal protective equipment (PPE) and through safe field practices and conscientious attitudes. Quality training is an essential tool.

2) Indirect Exposure to the Public

Indirect exposure to the public does not occur often, but the implications of public exposure and injury are of such great consequence that this should be considered a significant risk. In addition, protection of indirect public exposure to I&E drugs is mandatory for compliance with the Food and Drug Administration requirements.

Findings, Discussion, and Recommendations

Policies and Directives

WS should be commended for addressing I&E risks and safety through a specific directive. However, the current directive pertaining to the I&E program, WS Directive 2.340 (06/07/04) "Chemical Immobilization and Euthanizing Agents", does not adequately identify the requirements for addressing safety aspects as well as the legal responsibilities associated with the WS I&E program.

Communication about I&E directives, policies, updates, and training requirements was inconsistent between the I&E drug committee and state directors' offices. Some state offices showed us hardcopies of directives with "ADC" letterhead indicating they were not aware if they had the most recent version of a directive or not. This, in turn, contributed to inconsistent and often incorrect communication with field staff and among peers. One suggestion is for Wildlife Services, or a contractor, to create a website, as described below, with directives, policies, updates and memos, training curricula, technical information, and other pertinent resources.

Policy Recommendations:

1) WS should create policy or a revised WS Directive 2.340 to: 1) specifically identify the requirement for each state program to have veterinary supervision as required by FDA., 2) incorporate some form of accountability for meeting training requirements, and 3) revise I&E committee responsibilities which may be influenced by our safety recommendations relating to training.
2) WS Directive 2.340, Attachment 1. "WS Immobilization and Euthanasia Training Requirements"
   This attachment should be updated to include the WS on-line as part of the certification program. Also some approved drugs, such as alpha-chloralose and propriopromazine have their own certification program and should be separated from the other I&E training requirements.
3) WS Directive 2.340, Attachment 2. "WS Approved I&E Agents"
   The list should be rewritten to clearly identify which approved drugs are controlled substances.

Safety Program Administration

We discovered that administrative support, office space and facilities, and infrastructure necessary for a safe I&E program were occasionally lacking in state programs, particularly in those with new hires and remote field locations. This compromises some state programs' ability to properly address several important safety factors.

Addressing legal requirements - DEA

1. *Name of license holder.* All state programs with an I&E program had a DEA license. Most states had a DEA license issued to either the state director or to the WS employee coordinating the state I&E program, with WS also being identified on the license. One employee had a DEA license in his personal name without the agency identified, which raises concerns. Although we did not discover evidence that this poses a safety risk, it is atypical and possibly inappropriate to have a DEA license issued to a private individual.

Misuse or loss is one of the highest risks associated with I&E use in the workplace. This is primarily related to drug abuse, sale, and risks to the public. Having employees personally holding DEA licenses perhaps exacerbates this risk.

2. *Physical inspection of drug inventories.* Please note that we did not conduct an actual inspection to verify drug inventories. Inspection and verification is the most important measure to legally address DEA requirements and to create accountability to prevent actual or intentional loss of drugs. Our recommendation is consistent with those from a 2004 WS audit of the Inspector General (USDA, 2004). We recommend that each state program direct district supervisors to conduct an annual physical inventory and reconciliation with I&E authorized personnel; that state office personnel periodically conduct a physical inventory and reconciliation for the district supervisors; and that inspectors are independent of the storage areas they are inspecting. In our visits to four states, there was no discussion or suggestions that any inspections have occurred.

Addressing Legal Requirements-FDA

In addition to DEA requirements, FDA requirements must be addressed (Chapter 2 in WS Training Manual, 2001). FDA requirements exist to ensure that the public is not exposed through consumption of animals after the animals are drugged and released.

One of the most important aspects for legally addressing FDA is the requirement that all I&E drugs only be used under veterinary supervision. Some states do not have an arrangement with any veterinarian to provide oversight/guidance for their I&E program/drug usage. Other states had a verbal agreement with a WS administrator who is also a veterinarian, but we question whether this is adequate for addressing FDA requirements. One reason for our skepticism of these arrangements is that such informal agreements may not adequately define and outline the veterinarian/client/partner relationship as required by FDA guidelines. As evidence of this, most WS personnel we visited did not have a clear understanding of neither their nor their veterinarian's roles and responsibilities for their I&E program. Furthermore, we doubt whether anyone in WS has been given the official responsibility to serve as a supervising veterinary for WS state programs. We learned during the review process of only one state that had a written agreement with a local veterinarian to address FDA requirements and to contribute to a high quality of safety and professionalism.

One reference valuable for addressing both DEA and FDA legal requirements is National Park Service's director's order #77-4: Use Of Pharmaceuticals For Wildlife located on the web at: http://www.nps.gov/policy/DOrders/DO77-4--14-day.htm

Administrative Recommendations:

1. Conduct unannounced, random, and physical (on-site) inspections of state programs to verify that requirements of drug storage and inventory documentation are met. This will effectively prevent potential drug abuses, sales, or loss and ensure that the legal requirements for DEA are met.
2. Require that DEA licenses for WS programs be issued to employees identified as Wildlife Services' employees, not as personal agents.
3. Establish a policy or revised WS directive to: a) define the doctor-client-patient relationship between a WS state program and a supervising/consulting veterinarian, b) describe who is

eligible to provide the veterinary supervision/consultation, and c) identify how the relationship is documented.

4. Increase accountability among administrators, state directors in particular, to ensure safety protocols are followed. This includes accountability for all I&E policies, but in particular issues relating to drug inventories, storage, and documentation, veterinary supervision, and training requirements/certifications.

Training

Training Manual

The field and training manual appears to be a valuable tool utilized by both administrators and field staff, but it is outdated and should be refined and revised for the next printing. Moreover, the manual should be available primarily online, so that future revisions can be made immediately as the need arises.

The training manual is too vague in defining certification requirements. For example, on page 12 WS-Approved I&E Drugs are listed and on page 19 "Other I&E drugs" (Alpha-chloralose and proprioprornazine) are listed. Certification requirements in the manual were intended for the first list of approved drugs and separate training is available and required for alpha-chloralose and proprioprornazine. This clarification is not evident in the manual and administrators have applied this separate training toward certification. Other discrepancies in the manual will likely exist.

On-line Course

The online course could become a valuable component for certification. First, WS should better define what role it plays in meeting training requirements. Second, employees must be aware that it is available. Many employees we met were not aware of the online course. Third, it should be much more available to employees. Because many WS employees lack reliable high-speed internet connections, the value of the course is limited to them (because of the videos and other multimedia, a high-speed internet connection essentially is required to access the online course). WS should investigate alternate means of delivering the course via distance education such as by DVD.

When the manual was first written (2001), WS did not have an online training/testing course. Since the creation of the online training (2003), the testing alternative for recertification was approved and it is now one of the approved methods. The manual has not been reprinted since the original version, so this alternative is not in the printed version. Also, there is no definition of how much the online course meets the requirements of certification. Currently, passing the test every 5 years is an alternative for 20 hours of CE. Although this can save state directors a lot of expense, we question the wisdom of this policy and feels it does not provide the quality of training necessary to build a safe and professional culture.

Some have suggested that the online course be required in addition to live workshops, and we feel this has merit. In particular, requiring that students complete the online course prior to attending a live workshop will both familiarize students with WS-specific protocols as well as equip them to learn more in the live workshop.

Documentation of Training

Currently there is no standardized format for documenting and reporting completed training. We recommend that a standardized format for reporting initial certification training or recertification/continuing education events be developed. One option would be to get examples from state directors to learn what works best for them. The information should provide details about: date, location, instructor, location, and hours of training. Most of the records we inspected showed few or none of these details. Not only did this lead to the confusion for the chair of the I&E committee responsible for giving approval, the confusion led to significant frustration of all parties and a breakdown in morale and collaborations.

Evaluating Training Requirements

It was very difficult for the chairperson of the I&E committee to evaluate and make decisions about the acceptability of reported trainings. Adopting a standard format to report trainings will help this process immensely. In addition, though, the current structure and role of the I&E committee is problematic. Currently, the I&E committee is chaired by a state director and, regardless of which state director occupies the role, this is difficult. First, state directors have limited time, and the evaluation and tracking of individual training events is time consuming. Second, it places the state director, as chair of the committee, in the difficult position of both striving to develop and enforce high standards of training and certification for WS and striving to maintain good working relations with other state directors and their employees. As a result, past decisions regarding the acceptability of various trainings disrupted morale and the effectiveness and motivation for the certification system.

Tracking Continuing Education and Certification

In addition to evaluating training requirements, it was difficult for the chairperson of the I&E drug committee to track records for certification. Tracking should be able to follow WS employees when they change WS jobs and move to another state. We recommend there be a central record keeping entity for all I&E. Ideally, a database should exist that allows instantaneous determination of all WS employees' I&E certification status, including the date and method of initial certification and recertification, date that recertification must be achieved, and scores on certification tests.

Quality of Instruction

Obviously there is a challenge in finding courses taught by qualified instructors that are affordable, available, and pertinent to WS needs. It is also difficult logistically and economically for state directors to hold state meetings every year. Even when meetings are held, there is not time enough to provide training to address all of the employees needs.

"Train the trainer" approaches do not provide the quality of training important for developing strong knowledge and a developing professional culture. Although WS employees with particular interest and knowledge in I&E can add substantially to the safety performance of a program through supplemental training, guidance, mentorship, and other support, this should not replace continuing education provided by professionals with specific I&E expertise. Along these same lines, when state directors create opportunities for employees to work in teams, and better yet, change partners in those teams, the professional quality and safety culture can quickly rise. When employees work in teams, there is a sharing of ideas and comparisons of techniques and

equipment. Although it is often difficult financially and logistically for employees to work in teams of two, state directors should not accept employees working alone without first exploring possibilities to create field partnerships. This is particularly important for employees who are new hires or are otherwise inexperienced with I&E protocols.

Wildlife Services' Training Academy

There has been discussion about developing a training academy for Wildlife Services. This is an excellent idea to strengthen training opportunities and availability to meet needs beyond that of just I&E drugs. The academy could provide integrated, standardized, and centralized training in I&E and other important arenas. In addition, the academy could facilitate activities like:

1) Identification and development of instructors who understand and promote WS policies, values, and mission.
2) Compilation and tracking of employee training records and notify employees and directors of certification deadlines.
3) Integration of the online course into the larger training program.
4) Provide a means for evaluation of training reported by state directors and other employees to meet certification requirements. Because of some of the conflicts inherent with a state director or other WS employee conducting these determinations, we recommend that an independent office conducts these determinations.

Blue Card

Blue cards are granted to employees who achieve I&E certification. Although the cards were designed strictly as an internal WS document, they also have been suggested as a means for employees to demonstrate their certification to other wildlife professionals, law enforcement officials, and the public. Despite these good intentions, the blue card does not appear to serve any practical service. Several employees stated that they are never asked to show them and personnel from other agencies are not aware of the blue card and are not likely concerned about seeing proof. The blue card only causes confusion, which hampers attention to more important issues like safety protocols.

WS Employee Website

We observed a lack of communication and sharing of resources among state programs, administrators, field employees, and subject-matter experts. The current USDA website is cumbersome, does not provide the practical resources specific for WS, and is not dynamic and interactive enough. To improve this, we propose a WS I&E clearinghouse be developed in which employees can:

1) Visit the site a 2-4 times per year, verified by a username and password, to read updates on directives, policies, etc.
2) Obtain resources such as downloadable examples if I&E inventory forms and forms/resources for addressing other aspects in their work. A Wildlife Services website which could contain a variety of approved forms that state directors and field staff could use. If the state director or staff has a form which they feel is even better, they could submit it to the website host, and it could be added to the list.
3) Enroll in and participate in the on-line I&E course
4) Report training sessions using a standardized format
5) Obtain information on their certification status

6) Have access to a blog to ask work-related questions to experts within the agency

Internet Access

Many WS employees do not have high-speed internet access. This should seriously be addressed; as WS programs become more complex and training requirements become more important, online access for all employees will become more important. Employees currently with dial-up or no internet access should still be required to access the online course and, until high-speed connections are available for all employees, creative solutions should be developed for them. For example, employees could be encouraged to utilize internet access at the local library. Another creative approach would be to create internet access shared by other federal employees.

Training Recommendations:

1. Create an online clearinghouse of all I&E information pertinent to the WS program, including directives, policies, updates and memos, training curricula, technical information, and other pertinent resources.
2. Create or partner with an independent entity to a) evaluate the acceptability of training that is reported by employees and/or state directors and b) track employee training and certification.
3. Update the WS Field Manual as suggested.
4. Clarify the role of the online course toward meeting training requirements.
5. Standardize the format for reporting training events and opportunities, using input from state directors to determine the final form and function of this system.
6. Discontinue use of the blue card.
7. Improve internet access availability and quality for all WS employees.

Field Operations

Personal protective equipment (PPE) is essential for preventing accidental exposure. This is primarily latex gloves, protective eyewear, and a non-cluttered working area (a tail gate can be adequate for some wildlife species) with a covering to contain spills. In general, PPE was properly available to employees as state directors were very good with providing their field personnel with any equipment necessary for safe handling of I&E drugs. In all but one state we visited, the state director was very attentive to how well the employees utilized the PPE.

Employees associated with the Oral Rabies Vaccine (ORV) program usually covered their tail gate with a disposable surgical drape before handling the drugs and working the animal. Another precaution taken by several states working with the ORV program was the use of leather gloves under latex gloves to prevent accidental injections as well as bites or punctures from the traps. This kind of professionalism and attention-to-detail is commendable and should serve as a model for the larger WS I&E program.

Skills and Ability to use PPE

The most important way to prevent accidental exposure is using PPE in conjunction with good field techniques. It is especially important to attend to wearing gloves and to having a safe approach to recapping needles. For the latter, a knowledge and comfort with needles and syringes is essential as well as respect for their potential to cause harm.

Instruction and guidance should be provided about options for recapping needles. Two options should be recommended: 1) not recapping needles and immediately placing in a sharps container after use; and 2) recapping using the 3-step method: a) Touch hands together in some way, b) touch cap to needle at a perpendicular angle, c) slide it on. Making it mandatory to not recap needles can interfere with the "rhythm" and work patterns of some field employees. Policy or requirements for this safety aspect is not as important as building a conscientious attitude about safely working with needles and syringes. Promoting both options provides flexibility in the field while strengthening the safety culture through discussion and attention to detail.

Field Disposal Of Sharps

Most field personal and those working in labs properly disposed of needles and other sharp materials in bio-hazard containers. Some, however, did not have proper disposal equipment and were still looking for practical sharps containers that would fit in their field kits.

Proper Disposal Of Empty Or Expired Drug Vials And "Sharps" Materials

Every state we visited had confusion about how long to store empty drug vials and how to dispose of empty or expired drugs. WS should develop a policy for this describing what to do with expired or empty drug vials, how long to keep them, how to safely dispose, proper documentation, and how to use "reverse distributors" (companies that accept expired drugs). Policy is also needed for disposal of sharps and general biohazard waste.

Risks with Loss or Unaccountability of Drugs

The greatest safety risk is loss or unaccountability of controlled substances (i.e. ketamine, Telazol, and euthanizing agents) resulting in their abuse or illegal sale. This results in risk to the agency, personnel, and especially the public. As in any agency or organization such as a veterinary clinic, there is significant potential for employee drug abuse or sales. One vial of ketamine costs less than $10 and is easily sold for over $400 on the street. Here is one of many websites about the potential for ketamine abuse:
http://www.newdirectionsprogram.com/special%20k.html

Drug Inventory Documentation

Proper inventory documentation is the second most important measure (the most important measure is physical inspection and verification of drug inventories, which we addressed in the Safety Program Administration section above) to legally address DEA requirements and to create accountability to prevent actual or intentional loss of drugs. Therefore, it was a significant focus of our review.

Our review demonstrated that state programs appeared to have very good records documenting what drugs were in their central supply, what drugs were transferred to the field staff, and how the drugs had been used. Every state was also conscientious about labeling every drug vial with a unique number and had a tracking record (i.e. drug vial use form) for each vial describing how the drug was used: date, volume, purpose, and initials. Note, however, that we did not conduct an actual inspection to verify the inventories. Please see Safety Program Administration for more information about drug security.

Unfortunately, every state had different inventory forms/tracking records making it very difficult to conduct an actual inspection of the drug inventory. Every state also had its own "drug vial use form". Some headings for these forms did not even describe the purpose of the form. Was a "tracking record" tracking the main drug inventory, drug vial use, or chain of custody? As one example, the "tracking record" was a drug vial use form. Terminology for the headings of basic inventory forms should be standardized for all states.

Any and every form used by WS to document drug inventories must be self evident and organized enough to facilitate inspections; in many cases, we discovered recordkeeping that failed to meet this litmus test. To some extent, the actual forms themselves should be standardized across the agency. However, we recognize that one standard form for every level of inventory is not conducive to diverse state and field operations, but standardization should be considered the first and best option. A drug vial use form, for example, could be a standardized form for all states without compromising their system or method of book keeping. For documenting the principal drug supply, state programs could be given 3 or 4 examples of central supply forms which are user friendly and provide some flexibility for the structure particular program as long as it gathers the necessary information for CMITS and MIS and meets DEA and state legal requirements. The Inventor/Usage example form in the training/field manual (p. 77) is difficult to interpret and not user-friendly for most state directors.

The CMITS and MIS databases appear to effectively provide a consistent method of inventory and use of I&E drugs for all states. Such a universal format is valuable for documenting the volumes, extent, and distribution of I&E drug use in Wildlife Services. Employees described CMITS as inflexible and duplicated MIS documentation. Most states used their own customized forms to quickly review what was in their safe or in the field. Also CMITS and MIS are not compatible with the ORV rabies documentation, which increased the burden of data entry. If employees start using in-the-field laptops or handheld computers, we strongly encourage WS to re-write the software for CMITS and MIS and combining them into one. WS should also continue to use CMITS in conjunction with a paper-based inventory system.

Transfer of drugs

Transfer of I&E drugs from the director's office to field staff has significant potential for loss or unaccountability. In most cases, documentation of "chain of custody" was complete and accurate. However, discussion with employees suggested that some controlled substances were being mailed through the U.S. postal service, which should be discouraged unless proper conditions are in place to provide tracking. An agency policy for transfer or distribution of controlled substances is recommended.

Drug Storage Security

Improper storage of I&E drugs in the office and in the field can result in theft or other loss. In most cases, storage security was excellent. Some state directors provided storage containers such as a safe or lockable box designed for firearms. The latter could be permanently attached in a hidden area of the vehicle.

Occasionally storage security was lacking. One field office we visited was connected to a county animal shelter office with an open connecting door allowing access by people from the adjacent

office. The (locked) field kit was kept in the open on the floor and easily allowed for non-authorized personnel to enter the office and remove the field kit. A safe in the office, or a closed locked door, would have prevented access to the I&E drugs. District supervisors should know the location of every field kit and how it is stored both in the respective field office and in the vehicle.

Field Operations Recommendations

1. Standardize terminology and format for drug inventory forms. The exact format is less important than having the forms self-apparent, relatively standardized, and allow for the diversity of individual programs. As a result, we do not recommend a specific format, but recommend that the I&E committee create a small selection of forms with the input of state directors and others.
2. Create a flexible policy or informative memo on recapping needles that recognizes the acceptability of diverse field practices but emphasizes safe protocols.
3. Provide state programs with ideas or suggestions on products practical and effective as "sharps containers" in the field. This could be provided on the employee website.
4. Create a policy or memo on transporting I&E drugs when transferring to and from field staff.

Accidents, Injuries, and Illness

The review team attempted to address past accidents, injuries, and illness by:

1. Obtaining an agency-wide list of all reported accidents, which was largely too vague to identify I&E-specific accidents.
2. Interviewing WS personnel.
3. Reviewing list of reports and incidents from each director we visited.
4. Requesting from all WS state directors, via email, a detailing of I&E accidents

During our review process there were one or two anecdotal stories of an employee accidentally exposed to immobilizing drugs, but these stories could not be tracked down to confirm or gather details. It was extremely difficult obtaining records on past accidents, injuries, and illnesses. This is both due to a lack of a system for reporting and documenting and due to legal requirements for privacy protection. As a result, we recommend WS create a separate accident reporting and tracking system for activities classified as "high risk", such as I&E, so long-term trends can be compared with changing policies and practices to increase the level of safety over time.

In every anecdotal accident reported to us, the accident could have been prevented by proper training, equipment, and/or field techniques, as we have already discussed in previous sections.

Accident Recommendations

1. Creation of a separate accident reporting and tracking system for activities classified as "high risk", such as I&E, so long-term trends can be easily monitored and compared with changing policies and practices to increase the level of safety over time.

Wildlife Service's Culture and Attitudes toward Safety

The cultures and attitudes towards safety appeared to essentially be an "all or nothing" situation. Most states demonstrate very professional and conscientious attitudes with excellent attention to

details for human safety. This was supported by conscientious and detail-oriented state directors who either addressed the details themselves or gathered employees on his/her team who were also conscientious and detailed. In the states where there was less attention to detail, we observed that all WS personnel sincerely strived to do the best they could, but the general working culture and lack of information/training/discussion did not support proper safety protocols. In addition, we received anecdotal reports from current and past WS employees that some programs and administrators instructed employees to conduct I&E work without allowing them to receive the training necessary for certification.

For some states, the financial and logistical structure of the state organization leads to poor communications between state director and employees. Large states obviously have challenges for ensuring that district supervisors spend adequate time with each of their field employees. Also for some states, annual state meetings could not be held due to economics, travel logistics, and work demands. This can also weaken the culture of the state program.

We also observed that if funding sources were primarily local, some WS field staff felt a stronger allegiance and relationship with the local cooperators than with WS. This creates a culture where "getting the job done" supersedes issues of professionalism, ethics, and, most relevantly, safety. This also compromises the state directors' ability to guide and direct field employees. Although we sympathize and agree with the need for programs and personnel to meet the expectations of cooperators, this must not dilute the importance of safety, professionalism, and attention to detail. Indeed, WS should endeavor to create a culture where safety protocols are viewed as part-and-parcel of successful projects.

Most states contained teams of employees who respected and promoted education and knowledge. In some states, there was also an obvious culture against education as we heard employees teased that they had a college education. These attitudes were not generally mixed within a state, but rather either distinct or absent within each respective state. These attitudes, where education and professionalism are perceived as being negative, are detrimental to good safety.

Culture Recommendations

1. Ensure high quality training opportunities are available to all appropriate employees.
2. Create opportunities for isolated employees to work with others, either within the state or in an exchange program with other states.
3. Explore how to strengthen the culture (which already exists in many WS state programs) which acknowledges the importance of education, sharing of ideas among employees, and a conscientious attention to detail.
4. Explore the impact of how localized financial resources, responsibilities, and culture impact the function, communication, and structure within some state programs. WS employees can be professional, educated, and detail-oriented and still blend with local communities.

References

1. National Park Service. 2002. Director's Order #77-4: Use Of Pharmaceuticals For Wildlife http://www.nps.gov/policy/DOrders/DO77-4--14-day.htm

2. USDA/APHIS/Wildlife Services. 2001. Field Operations Training Manual for the Use of Immobilization and Euthanasia Drugs. USDA, Wildlife Services. 120pp.
3. USDA/Office of Inspector General. 2004. Audit Report. Animal and Plant Health Inspection Service Wildlife Service's Controls Over Hazardous Materials Inventory. Report No. 33001-05-Hy. Office of Inspector General, Northeast Region. 53pp.

Listing of all Immobilization and Euthanasia Drugs Reviewer Recommendations

Directives, Manuals, Operating Procedures (DMP)

1 WS should create policy or a revised WS Directive 2.340 to: 1) specifically identify the requirement for each state program to have veterinary supervision as required by FDA, 2) incorporate some form of accountability for meeting training requirements, and 3) revise I&E committee responsibilities which may be influenced by our safety recommendations relating to training.

2 WS Directive 2.340, Attachment 1. "WS Immobilization and Euthanasia Training Requirements"
This attachment should be updated to include the WS on-line as part of the certification program. Also some approved drugs, such as alpha-chloralose and proprioprom azine have their own certification program and should be separated from the other I&E training requirements.

3 WS Directive 2.340, Attachment 2. "WS Approved I&E Agents"
The list should be rewritten to clearly identify which approved drugs are controlled substances.

4 Clarify, create, and/or enforce policies regarding: a) veterinary supervision of state I&E programs, b) holding and disposal of empty or expired drug vials, and c) transfer of I&E drugs.

5 Update the WS Field Manual as suggested.

6 Create a flexible policy or informative memo on recapping needles that recognizes the acceptability of diverse field practices but emphasizes safe protocols.

7 Create a policy or memo on transporting I&E drugs when transferring to and from field staff.

8 Standardize terminology and format for drug inventory forms. The exact format is less important than having the forms self-apparent, relatively standardized, and allow for the diversity of individual programs. As a result, we do not recommend a specific format, but recommend that the I&E committee create a small selection of forms with the input of state directors and others.

Management and Administration (MA)

1 Conduct unannounced, random, and physical (on-site) inspections of state programs to verify that requirements of drug storage and inventory documentation are met. This will effectively prevent potential drug abuses, sales, or loss and ensure that the legal requirements for DEA are met.

2 Require that DEA licenses for WS programs be issued to employees identified as Wildlife Services' employees, not as personal agents.

3 Establish a policy or revised WS directive to: a) define the doctor-client-patient relationship between a WS state program and a supervising/consulting veterinarian, b) describe who is eligible to provide the veterinary supervision/consultation, and c) identify how the relationship is documented.

4 Increase accountability among administrators, state directors in particular, to ensure safety protocols are followed. This includes accountability for all I&E

policies, but in particular issues relating to drug inventories, storage, and documentation, veterinary supervision, and training requirements/certifications.

Training Program (TP)

1 Create or partner with an independent entity to a) evaluate the acceptability of training that is reported by employees and/or state directors and b) track employee training and certification. This same entity could be responsible for creating and delivering integrated, standardized and centralized training in the arena of I&E.
2 Empower an independent entity to track the certification status of employees and evaluate the acceptability of training reported by state directors and other employees to meet certification requirements. This same entity could be responsible for creating and delivering integrated, standardized, and centralized training in the arena of I&E. (same as TP-1)
3 Clarify the role of the online course toward meeting training requirements.
4 Standardize the format for reporting training events and opportunities, using input from state directors to determine the final form and function of this system.
5 Discontinue use of the blue card.

Equipment, Facilities and Maintenance (EFM)

1 Provide state programs with ideas or suggestions on products practical and effective as "sharps containers" in the field. This could be provided on the employee website.

Databases and Tracking Systems (SS)

1 Create an online clearinghouse of all I&E information pertinent to the WS program, including directives, policies, updates and memos, training curricula, technical information, and other pertinent resources.
2 Improve internet access availability and quality for all WS employees.
3 Creation of a separate accident reporting and tracking system for activities classified as "high risk", such as I&E, so long-term trends can be easily monitored and compared with changing policies and practices to increase the level of safety over time.

Culture (C)

1 Ensure high quality of training that is available to all appropriate employees.
2 Create opportunities for isolated employees to work with others, either within the state or in an exchange program with other states.
3 Explore how to strengthen the culture (which already exists in many WS state programs) which acknowledges the importance of education, sharing of ideas among employees, and a conscientious attention to detail.
4 Explore the impact of how localized financial resources, responsibilities, and culture impact the function, communication and structure within some state programs. WS employees can be professional, educated, and detailed oriented and still blend with local communities.

5 Increase accountability among administrators, state directors in particular, to ensure safety protocols are followed. This includes accountability for all I&E policies, but in particular issues relating to drug inventories, storage, and documentation, veterinary supervision, and training requirements/certifications.

Pesticides Safety Report

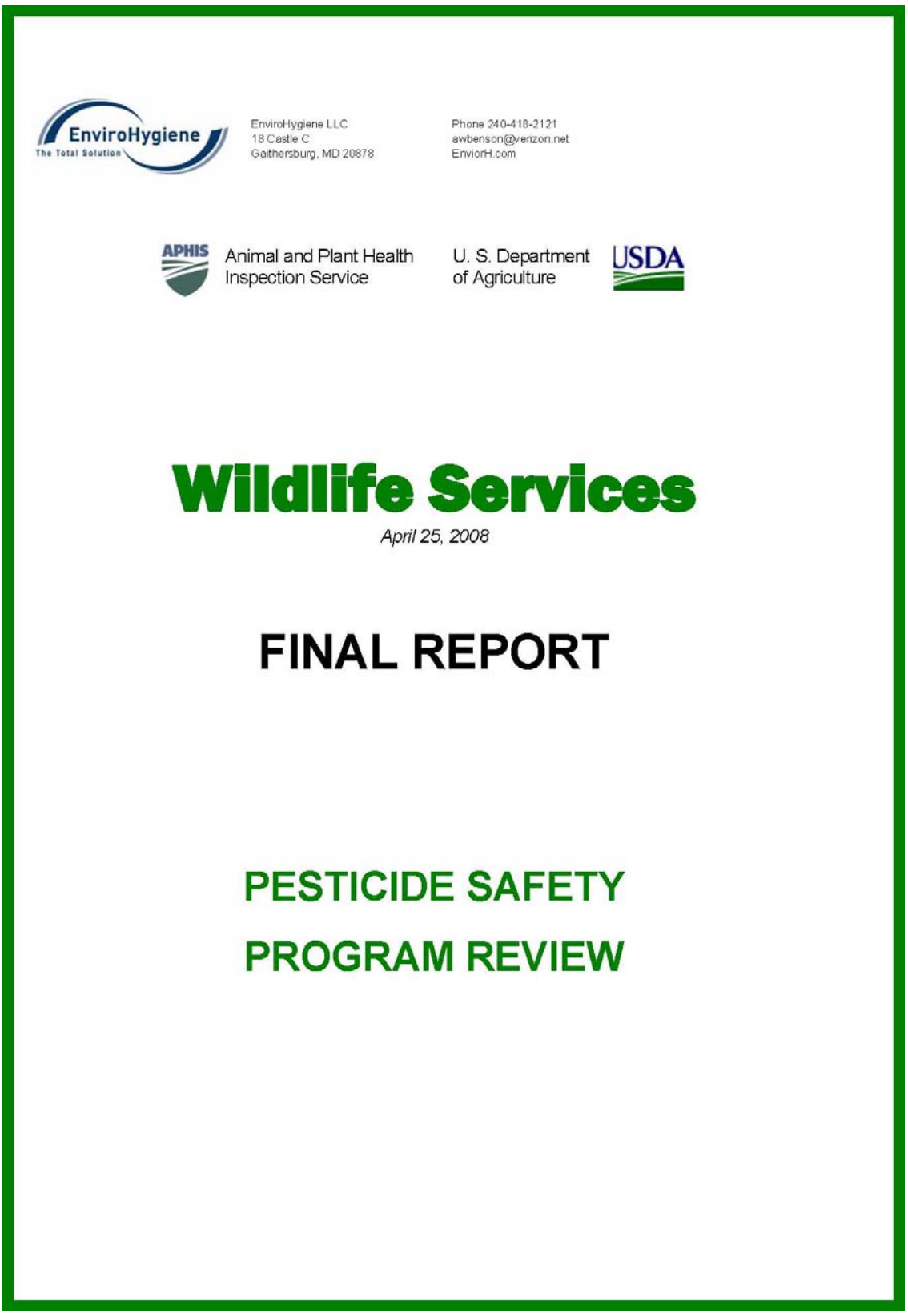


TABLE OF CONTENTS

1 Introduction

The U.S. Public Health Service (USPHS), Federal Occupational Health Services (FOHS), Environmental Health (EH) Program was contracted to perform a Comprehensive Pesticide Safety Review for the U.S. Department of Agriculture (USDA), Animal & Plant Health Inspection Service (APHIS), Wildlife Services (WS). FOH contracted with Mr. Arthur W. (Bill) Benson, EnviroHygiene LLC to provide these services through an Interagency Agreement established between FOH and APHIS in accordance with the Statement of Work (SOW) developed for the project. The SOW task objectives included to:

- review applicable WS Directives from a safety perspective,
- evaluate the safety Program Administration,
- evaluate current training,
- review WS accidents occurring between 2002 through 2007,
- evaluate the WS program culture, and will
- conduct four site visits.

EnviroHygiene LLC submitted a draft report to Mr. Jeff Jones, WS Technical Representative on March 1, 2008. This final report reflects appropriate format changes adopted from Mr. Jones' comments.

Site-Visit Methodology

EnviroHygiene LLC developed a Pesticide Safety Review Planning Tool (Appendix A-1) and received approval to proceed from Jeffery Jones, WS Technical Contact. Subsequently, EnviroHygiene LLC developed a Site Visit Screening Tool Sheet (Appendix A-2) and sent copies to the participating State Directors, prior to the site visit. The purpose of developing this checklist was to gather information before the site visits, to

inform the State Directors of the scope and purpose of the site visits, and convey what documents would be evaluated.

WS Directives' Review Audit Checklists (Appendix A-3) were developed and used on the site visits to determine the level of compliance with current WS Directives.

State Regulatory Contacts (Appendix A-4) and applicable State regulations were reviewed before the actual site visits and State Audit Checklists were developed.

Upon completion of each site visit a site visit summary draft report was written. If trends were determined to be prevalent in the site visit reports, they were included in this report's recommendation sections.

2 Scope

This report is limited to the review of the WS-provided Directives; information derived from four site visits, district offices at all four states, and several residential storage sites; accident reports; and other information provided by Mr. Jeff Jones, WS Technical Representative. The on-site information collection process focused on three potential areas of current and historical data. These areas were: 1) written records and files; 2) real property inspections; and 3) personnel interviews. The information sources are briefly described below.

1. Written Records and Files: Existing written records provided by the on-site APHIS administrative point of contact were quickly reviewed and copied for later evaluation.

2. Real Property Inspections: Physical inspections were performed under escort of WS representatives. This inspection process included an internal and external examination of each building and pesticide storage area, as well as the general grounds of the facility. The inspection results were recorded on the audit inspection forms.

3. Personnel Interviews: In-depth and/or topically-specific interviews with WS personnel were conducted over the course of the site visit. Personnel who work in concert with WS employees were also interviewed.

Information from external regulatory sources and off-site reconnaissance surveys were also collected during the course of the site visit. City, County, and State records and personnel that were thought to have, or be able to provide relevant information regarding the review were identified and consulted.

3 Executive Summary

The following program improvement recommendations are summarized and prioritized with the number one (1) being the most significant:

1. It is critical that the M-44 mechanisms be easily and thoroughly cleaned to prevent accidental injector activation. The newer type of mechanisms (Type 4 produced 2002 to present – no bottom crimp; a retaining pin holds plunger and ejector spring in place—the pin permits field disassembly for cleaning, lubrication or replacement of inner parts) should be used. The district supervisors should examine all M-44 devices in the applicator's possession, identify the old-type devices for recycling, and ensure the policy states that only new mechanisms are to be used. In addition, the cleaning technique of using vinegar and water to clean the mechanisms mentioned in section 4, page 12 or this document should be further evaluated.

2. The accident investigation program should be strengthened to provide an accurate assessment of a significant event, so that adequate preventive methods can be implemented to prevent any recurrence. Those significant events must be first identified as significant, then reported to the appropriate authority in an expeditious manner, and finally, investigated as close as possible to the time of occurrence. Significant events must be elevated up the management structure to ensure that an unbiased, professional evaluation can be conducted.
3. All applicators must carry at least one quart of water, coveralls (they could be one-use, disposable overalls), a towel, and soap in case the applicator splashes some pesticide on themselves, especially in their eyes.
4. Produce several short, pesticide specific, i.e., M-44, LPC 1080, DRC-1339, safety training programs that can be placed on the WS Intranet and be copied to a DVD for distribution to remote locations not having high-speed internet service.

5. Pesticide storage should be clearly defined in the directives as incidental, small, or large. Incidental storage areas should not be defined as pesticide storage areas with regard to inspections, storage requirements, and other items mentioned in any directives.

The table in section 3.1.1 below is a summary of observations, findings and recommendations identified during the 2008 WS Pesticide Program Review. Many of the positive findings are difficult to articulate unless you have visited the various locations and experienced the dedication and commitment of the pesticide applicators and their supervisors.

The WS commitment to a safe workplace was clearly evident while conducting these non-bias, third-party reviews. The safety reviews that were conducted clearly revealed their commitment to continued improvement through personal evaluations and inspections.

The individual state authorities are charged with administrating and enforcing state pesticide programs. The WS applicators are state-certified, and when the WS State Office sells pesticides, they have the required, up-to-date, state Dealer's Licenses at all locations where pesticides are sold.

Inspection reports for the states where the site visits were conducted revealed how seriously the WS takes pesticide safety. There were no warnings, or notice of violations, during the state-preformed annual inspections for the past five years at any of the locations inspected.

The findings of the pesticide safety review are listed below:

- 15 positive findings,
- 0 (zero) level 1 findings that indicate noncompliance with Federal and State regulations,
- 1 (one) level 2 finding that indicates compliance with Federal and State regulations, but non-compliance with WS directive(s),
- 18 level 3 findings that indicate non conformance with industry standards, best management practices.

- 11 level 4 findings that are purely recommendations for program improvement.

3.1 Executive Summary Table

The following table depicts the site visit results by categorizing the summary into four basic categories:

- Level 1 – results are in noncompliance of Federal or State regulations.
- Level 2 – results are in compliance with Federal and State regulations, but do not comply with WS Directives.
- Level 3 – results are in compliance with Federal and State regulations, and WS Directives, but the recommendations made are considered to be Best Management Practices (BMP) and follow industry standards.
- Level 4 – results are in compliance with Federal and State regulations, and WS Directives, but recommendations were made.
- Positive (P) – findings that illustrate positive, proactive approaches to safety and that demonstrate continued improvement processes.

TABLE 3.1.1

Description	1	2	3	4	P
4.1.1. Strong policy statement in Directive states that WS will adhere to all Federal and State regulations.					X
4.1.1. Policy statement lacks specificity regarding continual improvement, safety and environmental impacts and aspects, etc.			X		
4.1.2. Storage requirements in the directive are far more stringent than required by regulation.					X
4.1.2 Storage requirements do not differentiate bulk storage, small storage, or incidental storage.				X	
4.1.2. The directive does not require up-to-date MSDS and labels.			X		
4.1.2. Some records and forms were old and out-dated.			X		

TABLE 3.1.1 Description	1	2	3	4	P
4.1.2 The directive does not differentiate between a significant event and a minor event.			X		
4.1.2. The responsible individual for performing inspections is not identified in Directive.			X		
4.1.2. The applicator should carry a decontamination kit with extra clothing in his/her vehicle.			X		
4.1.3 Clear, concise, and direct instructions to address actions to be taken if an accident happens.					X
4.1.3 Equipment is purchased, i.e., GPS, laser measuring device, to ensure requirements of directives are followed.					X
4.1.3. New applicators go through a rigorous on-the-job training program and are not permitted to apply devices until they are judged competent.					X
4.1.3. Applicators seek ways to improve on cleaning methods for M-44 devices.					x
4.1.3. The directive lacks specificity in training.				X	
4.1.3. Training forms are antiquated and need revised.			X		
4.1.3. Revise directive to insure applicators have GPS and are required to use it.				X	
4.1.3. Revise the directive to state the dangers associated with sodium cyanide.				X	
4.1.3. Old-style M-44 devices should be scrapped and only the newer, easier to clean, devices should be used.			X		
4.1.4. The Technical Bulletin is complete and concise, and the directive informs the reader how to get a copy.					X
4.1.4. The directive should state the hazards associated with sodium fluoroacetate.			X		
4.1.4. Update the LPC 1040 training form.			X		
4.1.4 Request the manufacturer of LPC 1080 to make the identification number permanent.			X		
4.1.5 The directive follows established management systems practices to ensure accurate inventories are conducted and recorded.					X
4.1.5 The directive specifying quality assurance/quality control requirements are excessive and confusing.			X		
4.1.6 The directive is clear and concise when it comes to reporting unsafe conditions and placing the responsibility for identifying hazards prior to work assignments on supervisors.					X

TABLE 3.1.1 Description	1	2	3	4	P
4.1.6 Employees are provided wallet cards that clearly tell the physician that they may have been exposed to a serious disease, and then lists the diseases.					X
4.1.6 Employees are provided with a very proactive OMMP, if they choose to participate.					X
4.1.6 The directive should be more specific to the requirements as they relate to pesticide applicators and the use of PPE.				X	
4.2.1 All State Directors and District Supervisors were cooperative and provided any information requested. They all knew their jobs and always displayed a diligent, professional demeanor. They take their responsibilities for pesticide safety, security, storage, and accountability seriously. During the site visits not one discrepancy was noted nor was there any warning or notice of violation issued for the past five years during State inspections.					X
4.2.1 The District Supervisors are required to do too much paperwork and formal inspections. Their time would be better spent performing surprise inspections on applicators to make sure they are adhering to the pesticide label requirements and are wearing appropriate PPE.				X	
4.3.1 All pesticide applicators are state-certified.					X
4.3.2 Specialized training, even though it is given, lacks up-to-date documentation and no comprehensive training plan exists.			X		
4.3.2 Produce short videos for specialized training.				X	
4.3.2 Develop a written training plan that can be shared by all State Directors.				X	
4.4.1 Site visit interviews revealed that no accidental pesticide exposure had occurred.					X
4.4.2 Develop a system where severe accidents can be identified and reported to SHEWB so that an in-depth accident investigation can be conducted and documented. Share the causation factors with the WS community and describe methods to prevent recurrence.			X		
4.5.1 During the site visits, every applicator questioned, without exception, demonstrated their commitment to safety by continually describing location of PPE, application records, pesticide inventory locations, MSDS and labels. They clearly knew what was expected of them and they were knowledgeable of the various requirements.					X

TABLE 3.1.1 Description	1	2	3	4	P
4.5.2 Applicators are taught that the pesticide label is law. They can incorrectly assume that if the label does not require PPE, then they are safe not to use PPE in all circumstances.			X		
4.5.3 The pesticide labels from the Pocatello Supply Depot do not mention the use of PPE or other safety requirements. They may require updating.			X		
5.1 One site visit revealed that only one inspection had been conducted within a year, instead of the two required by the APHIS Safety Manual.		X			
5.1 The CMITS system and Instruction Manual requires improvements and updating. This is a recommendation and it is important to note the tremendous amount of resources required for this monumental effort.				X	
5.3 Distribute NFPA 704 fact sheet explaining use of signs with specific information on hazard categories directly correlated to specific pesticides used by WS.				X	
5.4 Annually review pesticide stocks and use for other regulatory requirements.			X		
5.5 Compose PPE fact sheets that are directly related to a specific pesticide, identifying specific PPE to be worn, i.e., DRC 1339, N-95 respirator, eye protection, and heavy rubber gloves when mixing. N-95 particulate respirator requires fit-testing.				X	
5.6 Update Pocatello Supply Depot pesticide MSDS in accordance with ANSI Z400.1-1993 standards.			X		
TOTALS	**0**	**1**	**18**	**11**	**15**

4 Evaluation Objectives

4.1. Review of WS Directives

The following evaluation and recommendations are based on sound safety and environmental management concepts established by several standards organizations and government agencies as identified in Appendix B, Authorities and References.

The International Organization for Standardization (ISO), 19000/19001, *Occupational Health and Safety Management Systems*, ISO 14000/14001, *Environmental Management Systems*, and ISO 9001, *Quality Management System* were used in conjunction with the regulatory authorities, to provide both a regulatory and management approach to review the WS' Directives. The aforementioned management tools are similarly structured in a four-part process: 1) PLAN: develop a safety and environmental policy and plan for implementation; 2) DO: implement the plan; 3) CHECK: build reliable metrics to ensure a credible evaluation process; and 4) ACT: determine metric results and establish a management review progress.

4.1.1. Directive 2.210, Compliance with Federal, State, and Local Laws and Regulations, 03/01/04

4.1.1.1. Strength(s)

It is an extremely positive sign when a Deputy Administrator, the top executive in the WS, issues a policy commitment to follow all Federal and State regulations. Issuing a signed policy statement by the senior official is the first part in implementing a strong integrated Safety and Environmental Management System (SEMS). This action clearly demonstrates the commitment and sponsorship of top management to ensure that WS employees are aware of their regulatory responsibilities.

4.1.1.2. Weakness(es)

The weakness in this policy commitment is that it lacks specificity regarding the WS mission and how it relates to its activities, its safety and environmental impacts and aspects, and it lacks a statement illustrating a commitment to continued improvement.

According to ISO standards, these components are necessary to establish an integrated SEMS policy statement.

4.1.1.3. Recommendation(s) and Observation(s)

Observation

The WS directive could be used to issue a strong policy statement. Revise the current directive to reflect the changes mentioned in the aforementioned weaknesses section.

The following draft Policy Statement could be used as a starting point for these revisions:

It is WS Policy to have all its employees committed to strict compliance with all Federal, State, and local safety and environmental regulations. There are no exceptions unless variances are approved by the regulating authorities.

Supervisors will take immediate action to evaluate mission activities and determine any impact they have on the safety and the environment. Once the recommended actions are identified, supervisors must make every effort to minimize the impacts.

Supervisors will ensure that all regulatory requirements under their purview are identified and that their employees are adequately trained to ensure a safe and environmentally sound working environment.

Supervisors will immediately evaluate all new mission tasks for safety and environmental compliance before the task is implemented. All recurring tasks will be evaluated annually for regulatory adherence.

The Office of Staff Services will review this Policy annually and send its recommendations for improvement, if any, to the current WS Director by December 31 of each year.

4.1.2. Directive 2.410, Pesticide Use, 1/02/08

4.1.2.1. Strength(s)

4.1.2.1.1 Storage: The storage requirements in this directive are far more stringent than current regulations require. The requirements required by this directive are generally

applicable for bulk pesticide storage buildings/areas. Most state regulations and National Fire Protection Association (National Fire Code) 434 define bulk pesticide storage as the storage of pesticides in quantities of greater than 55 U.S. gallons liquid measure or 100 pounds net dry weight. Most WS storage locations do not meet this "bulk pesticide storage" definition.

The Armed Forces Pest Management Board, Technical Guide No. 7, *Installation Pesticide Security,* recommends a 7 ft. fence around facilities. However, the guide refers the reader to the Armed Forces Pest Management Board, Technical Guide No. 17, *Design of Pest Management Facilities*, which states that "the fence may be omitted if other security measures are taken." WS has taken those extra security measures by installing monitored security systems containing motion, glass-break detectors, and circuit-breaker intrusion alarms. In addition, WS has provided flammable storage cabinets with key locked, three-point latching doors. These cabinets also come with secondary containment and are fire rated. For most of the central storage/distribution areas, the pesticides are located in a triple latched, keyed, fire-rated flammable liquid storage locker, inside a locked storage area, providing double security. During the prescribed site visits, all the central storage areas had a minimum of a 6 foot fence around the entire facility and some even had guard service. Video surveillance and video taping were also available at all sites that were visited. This author was a professional fire-fighter for 24 years and knows that one of the easiest securities to breach is a locked fence gate. A pair of simple bolt cutters permits easy access through the gate. However, one of the most difficult areas to breach is an area protected by a strong, metal, three-latch, flammable liquid storage cabinet. Because of the construction of the cabinets the weight minimizes the possibility of theft. All of the aforementioned security methods mentioned clearly demonstrate WS management's commitment to the security of the stored pesticides.

Note: The Technical Guide No. 17 stipulates (in all capital letters) that the handbook shall not be used…as a checklist for inspection of **existing** facilities.

4.1.2.1.2 Material Safety Data Sheets (MSDS): The directive requires that MSDS and pesticide labels must be provided to all WS personnel or other potential users. This

clearly demonstrates the importance of these documents and WS's commitment to adhere strictly to the current Federal and State regulations.

4.1.2.1.3 Recordkeeping: The directive requires that the application information be recorded within 30 days following the application and that the documentation be kept for at least two years. All WS sites that EnviroHygiene LLC visited, immediately recorded information at the time of application and all application records were available for examination. Furthermore, in all instances, all application records were being maintained at the various sites and could be quickly located by applicators and District Supervisors.

4.1.2.1.4 Pesticide Illness, Injury, or Damage Reporting: WS requires all accidents involving pesticides to be immediately reported to the supervisor and State Director and requires the use of WS Form 160 (2007) and WS Form 160A (2007) to document these accidents. The forms standardize accident reporting while still providing the specificity required by professional accident investigators. The forms serve to document the incident in sufficient detail to allow the Safety, Health, and Employee Wellness Branch (SHEWB) to determine if further investigation is required.

4.1.2.1.5 Inspections: Formal, documented inspections are required a minimum of twice a year at central storage/distribution sites using an APHIS Safety Inspection Checklist. This ensures that the central storage/distribution sites are in compliance with code, and that the directive is being followed.

4.1.2.2. Weakness(es)

4.1.2.2.1 Storage: The WS storage requirement does not differentiate bulk storage from small quantity storage. Small quantities of pesticides are stored using the much stricter bulk pesticide storage requirements.

4.1.2.2.2 MSDS: The directive does not require up-to-date (the most current MSDS and pesticide labels) be provided to all WS personnel or other potential users.

4.1.2.2.3 Recordkeeping: Some of the applications were outdated and had not been recently evaluated for compliance with current law. However, it should be noted that all

site application records did contain all the information required by the directive, and Federal and State Regulations.

The directive states that records will be checked by Headquarters staff and with periodic spot checks by designated officials. This statement lacks clarity relative to frequency and accountability.

4.1.2.2.4 Pesticide Illness, Injury, or Damage Reporting: The directive does not differentiate between a significant event which will require follow-up investigations by SHEWB personnel and a minor event, which will not require a follow-up investigation.

4.1.2.2.5 Inspections: The person(s) responsible for performing the inspections at the central storage/distribution sites are not identified.

4.1.2.3. Recommendation(s) and Observation(s)

Recommendation

4.1.2.3.1. Storage: Pesticide storage should be defined as incidental, small, or large. Incidental storage areas should not be defined as pesticide storage areas with regard to inspections, storage requirements, and other items mentioned in this directive.

Incidental storage sites should be defined as containing less than five pounds (lbs.) of solid, or less than one gallon of liquid pesticide, and not containing any quantity of restricted-use pesticides.

Small quantity storage areas should be defined as exceeding the requirements of an incidental storage site, but not exceeding 55 gallons of liquid, nor 100 lbs. of net solid.

Large quantity storage areas (bulk storage) should be defined as storage areas that contain over 55 gallons of liquid or 100 lbs. of net solid material.

By identifying the quantity and type of storage area, a risk analysis of requirements based on the actual risk can be performed rather than on an assumption within the WS organization.

The following example is a direct result of my site visits. One of the State Offices central storage/distribution area would have been considered incidental storage,

because of the limited quantity of supply kept on site, however, the District storage site would have been considered a small-quantity site. In comparison, another State Office did not store pesticides at its office. Therefore, it would not be considered a storage site. Rather, the State Office (also a District office in this state) had a central storage/distribution area remotely located that would be considered a Large-Quantity Storage Site. This change would clarify the risk to people and the environment.

The "General Storage Requirements" section of the directive should require that storage sites are sufficiently separated from water sources. Pesticide storage areas should not be located near streams, rivers, potable drinking water wells, or well-head protection zones. This is especially true in several states having well-head protection zones.

By evaluating the quantity of pesticides and type of pesticides stored, WS should implement a procurement system over a 10 year period to identify large-quantity storage areas that provide the safest, most secure storage buildings available. Outdoor chemical storage buildings should be provided for large-quantity storage site locations.

The NFPA defines outdoor chemical storage buildings as "a prefabricated structure, manufactured primarily at a site other than the final location of the structure, and transported completely assembled or in ready-to-use means of providing storage and secondary containment for hazardous materials without having to resort to building a new permanent structure." The type of material stored will dictate what requirements are necessary. Example: If the building is not being used to store flammable **liquids**, explosion-proof lighting (and other explosion-proof fixtures, i.e., heater, air conditioning, etc.) are not needed. However, one option available for these buildings is fire protection. The following describes a perfect option for buildings storing aluminum phosphide. A dry-chemical suppression system instead of a sprinkler system would be advisable since aluminum phosphide emits toxic gases if it comes into contact with water.

In the following paragraphs, I am using literature from Safety Storage Inc., with their permission. They are one of several GSA contractors that provide these buildings. This should in no way be construed as an endorsement of one company over another.

The information and photographs are provided as examples only. Federal Acquisition Regulations must be followed for the procurement of any such storage building.

The following photograph is an example of an outdoor chemical storage building.

OPTIONAL EQUIPMENT AND ACCESSORIES (PARTIAL LIST)

- Lighting*
- Heating*
- Air conditioning*
- Refrigeration*
- Dry chemical fire suppression systems
- Liquid level detection systems*
- Gas sensor modules*
- Audible and visible alarms*
- Digital readout controller
- Secondary containment shelving
- Separation walls
- Compressed gas cylinder storage racks
- Electromechanical exhaust ventilation systems*
- Explosion relief construction
- Roll-up doors
- Stainless steel linings**
- Safety eye wash and emergency shower
- Insulation
- Loading ramps
- Fiberglass floor grating
- Chemical resistant sump liners

*Explosion proof and non-explosion proof available.
**Stainless steel lining on interior walls and/or ceiling recommended when corrosive materials are dispensed inside building.

Air conditioner with control panel; audible alarm and enclosure for dry chemical fire suppression system; alarms for liquid level detection and temperature sensing devices; relay enclosures; junction boxes; and load center. Also includes an alarm test panel to ensure proper notification system operation.

- **A** Explosion-proof convection heater
- **B** Gas cylinder racks
- **C** Fume hood and sink
- **D** Air conditioning
- **E** Secondary containment shelving
- **F** Galvanized steel grating
- **G** Explosion vent panel
- **H** Explosion-proof lighting fixture
- **I** Gas sensor and dry chemical nozzle
- **J** Explosion-proof fan forced heater
- **K** Secondary containment shelving with air conditioner
- **L** Fiberglass floor grating
- **M** Bridge crane with drum lifter
- **N** Emergency safety shower with eye wash

The benefits of purchasing the aforementioned storage buildings are significant. The buildings are built to comply with numerous codes including EPA 40 CFR, OSHA 29 CFR 1910, NFPA 30 and 70, and UFC Article 79 and 80. The buildings are approved by the Underwriter's Laboratories (UL) and have a Factory Mutual (FM) Approval. They can be insulated for temperature control and limit energy consumption, which can be extremely beneficial in some geographical areas. An additional benefit is the ability to move these buildings when locations change or missions change. **Although these buildings are not designed for incidental and small quantity storage of pesticides they can be used for those purposes.**

Observations

4.1.2.3.2. MSDS: The State Director should assign a responsible employee to annually review the State's office files and make sure the most current MSDS, pesticide label and other material are at each of the District and State Offices and in each vehicle transporting pesticides. Any out-of-date materials should be disposed of or recycled.

4.1.2.3.3 Recordkeeping: Each State Director should assign an employee to evaluate the application records to ensure that the required information is included in the particular application records. Since some states require additional information than others, most of the required information is similar. The states should send all their application records to the OSS for examination so a comparison can be done to determine if standardization is possible.

A record evaluation schedule, based on past performance, complexity of operation, and the quantities and the type of pesticides used, should be implemented. OSS should coordinate this effort but does not necessarily have to perform the actual evaluations.

Recommendation

4.1.2.3.4 Pesticide Illness, Injury, or Damage Reporting: The directive should require that in significant events, the completed forms must also be sent to SHEWB to determine if further investigation is required. Significant events can be defined as those events requiring employees to miss three or more days of work, those accidents

requiring long-term medical attention, or those events in which one or more people are killed. However, any event involving a none-WS employee is considered significant. Regardless of the severity of an accident, follow-up investigations can assist in preventing future accidents although staff-hours and other resources might limit the ability to perform a follow-up on every accident. Ideally, even property damage accidents and near-miss incidents should be reported and investigated. Before this recommendation is considered, SHEWB should be consulted to determine if it can be accomplished with its limited resources.

Observation

4.1.2.3.5 Inspections: Instead of using the APHIS Safety Inspection Checklist to inspect the central storage/distribution areas, SHEWB should be consulted to see if it is willing to accept Enclosure 1, Self-Inspection Checklist for Residential Storage Sites For Pesticides, Pyrotechnics, Rocket Net Charges and/or Incidental Explosive Materials, which is far more suited to WS-specific storage inspection requirements. If so, remove the word "Residential."

On November 20, 2007 the Department of Homeland Security (DHS) published the final Appendix A in the *Federal Register*. With the publication of a final Appendix A, all provisions of 6 CFR Part 27, including § 27.210(a)(1)(i), are operative and in effect. The deadline in the Chemical Facilities Anti-Terrorism Standard (CFATS) interim final rule for submission of "Top Screens" required by 6 CFR § 27.210(a)(1)(i) is 60 calendar days from the date of publication of Appendix A in the Federal Register, i.e., November 20, 2007.

Several pesticides that WS uses are identified as Chemicals of Interest (COI) and may require registration and completion of a web-based Chemical Security Assessment Tool. During the site visits certain pesticide stocks were identified for possible registration. These pesticides include Fumitoxin, gas cartridges, and sodium cyanide (M-44). It is unlikely that the gas cartridges (400 lbs. at one storage area) or sodium cyanide (1001 lbs. at one storage site) would require registering the facility. Fumitoxin is made up largely of aluminum phosphide, which requires placarding

according to the Hazardous Material Transportation Act (HMTA) and therefore requires that the facility register with DHS.

The DHS requires the CFATS registration of zinc and aluminum phosphide pesticides in any quantity because any amount of this pesticide being transported along public highways must be placarded in transportation. The manufacturer and WS have an exemption to the placarding requirement. The special exemption permits transporters of limited quantities of Fumitoxin to do so without placarding vehicles as is normally required under the HMTA.

WS should write a letter to DHS requesting an exemption from the CFATS registration process based upon the DOT Special Exemption 10753 (tenth revision), expiration date June 30, 2010, dated July 10, 2006, afforded to Pestcon Systems, Inc., the manufacturer of Fumitoxin. Another document that can be used to affirm WS position, is Dated December 21, 2007 from Robert B. Stephan, Assistant Secretary, DHS. An email confirmation is all that is required. The DHS Compliance Security Compliance Division can be emailed at dennis.deziel@dhs.gov. The aforementioned letter from DHS is located at the end of this section.

Recommendation

4.1.2.3.6. Carry Decontamination Kit in Pesticide Applicator's Vehicles: The WPS requires that all applicators carry at least one quart of water, coveralls (they could be one-use, disposable overalls), a towel, and soap in case the applicator splashes some pesticide on themselves, especially in their eyes. The WPS exempts vertebrate animal's pesticide applications from its requirements. However, this particular requirement could be extremely beneficial to WS pesticide applicators and is highly recommended to be included in the directive.

4.1.3. Directive 2.415, M-44 Use and Restrictions, 2/18/04

4.1.3.1. Strength(s)

The major strength of this directive is the clear, concise, and direct approach of the requirements for use and what immediate action should be taken if a toxic or adverse event happens. Supervisors of M-44 applicators have provided additional

equipment and direction to ensure the accuracy of placement of injectors. Equipment includes laser distance finders to ensure that injectors are placed appropriate distances from structures, roadways, and water sources. Global positioning satellite receivers are provided to applicators to ensure appropriate locations are noted on application records and to ensure that if something were to happen to the applicator, someone else could immediately retrieve the devices. New applicators are rigorously trained in M-44 use, must sign a document which contains the class criteria, and are not permitted to apply devices alone until cleared as a "competent M-44" applicator by another applicator (usually a District Supervisor) that has performed M-44 applications alone for at least two years.

A WS state-certified applicator interviewed at one of the state visits uses a water and vinegar mix to clean the M-44 device mechanism and has had very good results. The single biggest problem associated with this device is accidental activation. By keeping these devices extremely clean, it drastically reduces the possibility of an accidental activation. The newer devices have the capability of being easily disassembled to facilitate cleaning.

4.1.3.2. Weakness(es)

Applicators are sufficiently trained in M-44 use. However, no mention of training is in the directive. Applicators are provided extra equipment (as mentioned above), however, no mention of it is in the directive. In addition, training forms are antiquated and require revision. Although safety is included in the training there is no mention of safety in the directive.

4.1.3.3. Recommendation(s) and Observation(s)

Observation

The policy could be revised to ensure GPS receivers and laser distance finders are provided to all M-44 applicators in case the states not covered in the review do not have these devices. Insert a paragraph dedicated to training, identifying what is already done – see above – strength(s). In addition, update the training form (currently an ADC Form). Make it policy to use a GPS to accurately mark locations of all M-44's.

An entire paragraph should be dedicated to the safe use of the pesticides. Knowing that the directive is open to public scrutiny, this inclusion will illustrate the willingness of WS to demonstrate its dedication to "open" community involvement, and at the same time, show that they readily understand the dangers associated with sodium cyanide and are dedicated to handling it safely.

Recommendation

It is critical that the M-44 mechanisms be easily and thoroughly cleaned to prevent accidental injector activation. The newer type of mechanisms (Type 4 produced 2002 to present – no bottom crimp; a retaining pin holds plunger and ejector spring in place—the pin permits field disassembly for cleaning, lubrication or replacement of inner parts) should be used.

The district supervisors should examine all M-44 devices in the applicator's possession, identify the old-type devices for recycling, and ensure the policy states that only new mechanisms are to be used.

Sodium cyanide reacts with acid, oxidizers and heat to form dangerous by-products. Sodium cyanide reacts with both acid (even very weak acid) and water (moisture) to produce hazardous hydrogen cyanide gas. Sodium cyanide readily absorbs carbon dioxide and moisture from the air and deliquesces (to absorb atmospheric water vapor and become liquid). The practice of using vinegar and water to clean the devices should be studied to ensure proper protocols and safe-guards are implemented. The amount of debris left on the injector device may be minimal, even non-existent, but because of the potential severity of the process, it must be closely evaluated. If the evaluation indicates no significant risk, the protocol should be shared with all employees and made part of the Technical Bulletin.

4.1.4. Directive 2.420, Livestock Protection Collars

4.1.4.1. Strength(s)

This directive not only makes policy, it informs applicators, and potential applicators, that they must follow all Federal and State regulations, as well as the "User Instructions and Use Restrictions" contained in the "Technical Bulletin for Sodium

Fluoroacetate," and informs the reader how to obtain copies of this information. The Technical Bulletin is a complete, concise document that informs the user of restrictions and use requirements. All applicators are required to certify that they have read and understand all the provisions of the Technical Bulletin.

4.1.4.2. Weakness(es)

This directive does not state the hazards associated with the active ingredient (sodium fluoroacetate).

4.1.4.3. Recommendation(s) and Observation(s)

Observation

The training form (currently an ADC Form) is out-of-date.

An entire paragraph should be dedicated to the safe use of the pesticide. Knowing that the directive is open to public scrutiny, this inclusion will illustrate the willingness of WS to demonstrate its dedication to "open" community involvement, and at the same time, show that they readily understand the dangers associated with sodium fluoroacetate and are dedicated to handling it safely.

The numbering identification system provided by the manufacturer fades off the collar and requires the applicator to re-paint (or tag in some manner) the collars. Just by the nature of handling the collars less, the applicator's potential of an accidental exposure to sodium fluoroacetate is dramatically reduced. Not often, but sometimes the used collars are damaged by fences, and cactuses and other bushes that may create small pin holes. It should be pointed out that the applicators are concerned about requesting the manufacturer to provide a more permanent marking system. They are concerned that the manufacturer may stop making the devices and the rancher would have one less weapon in his arsenal to fight predatory animals. Their concern may be justified, but it is still advisable to request this action from the manufacturer.

4.1.5. Directive 2.465, Accountability and Oversight of Hazardous Materials

4.1.5.1. Strength(s)

This directive has created a system containing the basic principles of the International Organization for Standardization (ISO), 19000/19001, *Occupational Health*

and Safety Management Systems, ISO 14000/14001, *Environmental Management Systems*, and ISO 9001, *Quality Management Systems*. These principles being: plan, implement, check and recheck on a routine basis. The directive provides certainty (not 100%, but as close as can be obtained) that chemicals will be inventoried and accounted for, thereby assigning responsibility and accountability to various levels of employees throughout the organization.

4.1.5.2. Weakness(es)

The policy is somewhat confusing. The directive requires quarterly and annual physical inventories. However, there are no date deadlines mentioned. A chart similar to the one below in the recommendation(s) section could be used to document the process and deadlines.

The directive requires many steps in a short period of time. The steps could be provided in an easy to read and understandable chart similar to the one below in the recommendation(s) section.

4.1.5.3. Recommendation(s) and Observation(s)

Observations

4.1.5.3.1 The State Program Evaluations should be based on the type and quantities of pesticides stored at a particular storage location, hence the classification of incidental, small, and bulk storage site definitions. After reviewing the CMITS and MIS, a comprehensive audit program should be established. This 10-year plan should identify those State Offices that store and use a large quantity of pesticides. Large quantity storage states should be formally inspected by a third-party at least every three years, while small quantity storage areas should be audited no less than every seven years. Incidental storage locations should be managed and inspected by the supervisor as a routine supervisory responsibility.

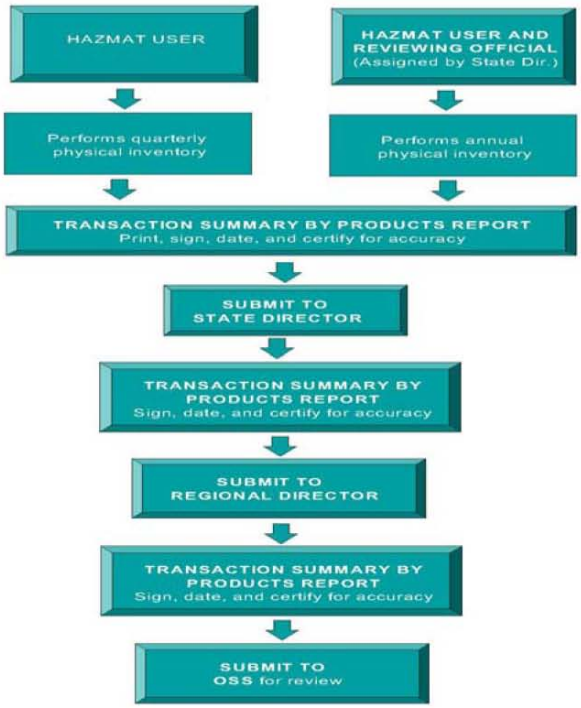
A neighboring state pesticide applicator could evaluate the inventories of his/her counterparts. Another option (depending upon the relationship between the State Director and the state pesticide regulatory agency) is to request the state Department of Agriculture inspector to include an inventory review in their annual inspection. This

would be classified as a third-party audit, and the cost would be minimized. The WS could save a great deal of money and increase cooperation with the states by developing an agreement with the individual states to inspect large quantity storage areas and provide some reimbursement to the State to cover the state inspector's costs.

4.1.5.3.2 A date table reflecting the deadlines for submittal would be useful to the responsible parties and should be included in the Directive. An example follows:

Responsible Employee	Report to	Submit NLT*
First Quarter		
HAZMAT User	District Supervisor	Saturday, March 01, 2008
District Supervisor	State Director	Monday, March 10, 2008
State Director	Regional Director	Thursday, March 20, 2008
Regional Director	OSS	Monday, March 31, 2008
Second Quarter		
HAZMAT User	District Supervisor	Tuesday, June 10, 2008
District Supervisor	State Director	Tuesday, June 10, 2008
State Director	Regional Director	Friday, June 20, 2008
Regional Director	OSS	Monday, June 30, 2008
Third Quarter		
HAZMAT User	Report to District Supervisor	Monday, September 01, 2008
District Supervisor	State Director	Wednesday, September 10, 2008
State Director	Regional Director	Saturday, September 20, 2008
Regional Director	OSS	Tuesday, September 30, 2008
Fourth Quarter		
HAZMAT User	Report to District Supervisor	Monday, December 01, 2008
District Supervisor	State Director	Wednesday, December 10, 2008
State Director	Regional Director	Saturday, December 20, 2008
Regional Director	OSS	Wednesday, December 31, 2008
* Days of the week are used in 2008 are for demonstration purposes only. Days of the week will change for 2009, 2010…		

4.1.5. 3.3. A flow chart similar to the following would clarify who is responsible for what:



4.1.6. Directive **2.601, Safety**

4.1.6.1. **Strength(s)**

The directive is clear and concise when it comes to WS employees' responsibilities for immediately reporting unsafe conditions to their supervisor and by placing the responsibility for identifying hazards prior to the work assignments.

A physician's alert wallet card was developed and given to every employee before they started their assigned tasks. The card clearly states that the employee may be exposed to serious diseases (rabies, Hantavirus, plague, Lyme disease, psittacosis, Chlamydia psittaci, or histoplasmosis) in their day-to-day activities. This card was developed so that the employees could give their physician a clear understanding of possible exposures to minimize the probability of misdiagnosis.

Employees are provided with a very proactive Occupational Medical Monitoring Program (OMMP) if they choose to participate. A pesticide applicator that applies a cholinesterase- inhibiting pesticide (carbamate, etc.) is tested before application and routinely checked during the application process. For those that require the use of a respirator, OMMP physicians can authorize the use of these respirators before the

employee is trained and fit-testing for the appropriate respirator is accomplished. This directive informs employees that they may be required to participate in the OMMP, but can decline in writing). However, refusal may be justification for reassignment, or other action. This strong statement illustrates to employee's the paramount importance that management places on the OMMP and their active participation in the program.

4.1.6.2. Weakness(es)

This Directive should be more specific to requirements as they relate to pesticide application and the use of personal protective equipment.

4.1.6.3. Recommendation(s) and Observations

Observation

The directive should identify the fact that pesticide applicators are often required to wear respirators. Before wearing a respirator, employees must receive approval from a physician that the person is fit enough to wear a respirator. In addition, the employee must be trained in the specific respirator's use and limitations, and must be fit-tested annually. Employees applying organophosphate-based pesticide, or other cholinesterase-inhibiting pesticide (carbamate) must have a baseline analysis before they start application and then periodic tests (as determined by the OMMP physician) to ensure that there is no health hazard or exposure to the pesticide. Other recommendations are made elsewhere in this report.

4.2. Evaluation of program oversight, management responsibility for compliance, and hazard communication.

4.2.1. Strength(s)

All State Directors and District Supervisors interviewed during the site-visits shared the amenable traits of complete disclosure and cooperation. It was apparent that they grasped the value of the survey. They readily and openly informed me of their responsibility and commitment to safety, described what training they felt was adequate for others, and continually emphasized their commitment to comply with existing regulations and directives. Their basic philosophy was to go beyond the regulation's requirements rather than taking a chance of not complying.

The State Directors made sure that they had the most current WS Directives in their office files system (usually a three-ring binder). One State Director received two new directives during my site visit and immediately retrieved the binder of directives from me and updated the binder with the new directives. Subsequently, he took the binder back to his office to immediately review the new directives. He also sent a copy of the new directives to his District Supervisors to ensure they updated their binders and reviewed the most current material. This clearly illustrates the State Director's commitment to timely distribution of materials and the importance he placed on reviewing materials in a timely fashion.

The State Directors required that all storage areas be, at a minimum, in full compliance with WS Directives, regardless of the quantity of pesticides. Industry storage requirements are generally based upon use, quantities, and types of pesticides. WS Directives currently hold WS to a higher standard than the industry because they require storage that is in compliance with bulk-pesticide storage. Pesticide inventories were up-to-date and accurate, with one exception, which was corrected on the spot.

All pesticide applicators are required to be State-certified. If a pesticide applicator is state-certified, the state is certifying that they have had HazCom training. This is required by FIFRA and state-specific laws. This is clearly evident when examining the Worker Protection Standard (WPS) requirements. The WPS clearly exempts state-certified applicators from the "Agricultural Workers" and "Pesticide Handlers" training because the state training programs are far more demanding than the WPS training requirements.

Although the Director and Regional Directors were not interviewed for this review, it is clear by their employee's positive attitude and clear understanding of regulations that management provides significant guidance and resources, and instills the appropriate level of importance of safety awareness to their employees.

4.2.2. Weakness(es)

If anything can be considered a weakness, it is that the District Supervisors are required to do so much office-type work (very time-consuming) to keep up with chemical

inventories and MIS reporting, and to perform storage inspections, that their ability to supervise the applicators in the field is limited.

4.2.3. Recommendation(s) and Observation(s)

Observation

A risk assessment should be performed as to the actual benefits gained by certain requirements and examine the possibility of reducing the non-essential checks and cross-checks of certain tasks that have a low impact. An example is as follows. If five grams of DRC 1339 are missing from a bottle is it more likely to have been stolen or used and recorded incorrectly? What damage could it do compared to 5 grams of sodium cyanide? There are no easy answers, but now that the DHS has identified those COI's, one should base inspections and documentation on those products. It would be far more beneficial to have a District Supervisor in the field examining how their applicator is working safely and following all restrictions on the pesticide label, rather than having them examine a storage cabinet to determine if it meets WS requirements, especially after it has already been determined to meet all standards in previous audits.

4.3. Evaluation of current training.

4.3.1. Strength(s)

All pesticide applicators are required to be certified by the State as applicators and those states that sell pesticides to customers have State Dealer Licenses. The WS requires these credentials to ensure that their applicators are following all State and local regulations, even though many are exempted by Sovereign Immunity and other State enacted laws. The willingness of WS to demonstrate its willingness to fully cooperate and interact with the State officials should be continued and encouraged.

4.3.2. Weakness(es)

Lack of written documentation of specialized training and a comprehensive training plan of requirements are weaknesses in the program.

4.3.3. Recommendation(s) and Observations

Recommendation

4.3.3.1 Training Videos.

Produce several short safety training programs that can be placed on the WS Intranet and be copied to a DVD for distribution to remote locations not having high-speed internet service.

These video learning tools should be short (15-20 minutes each), should be pesticide-or process-specific, and their major emphasis should be on safety. The video should show actual applicators "out in the field," demonstrating the proper precautions (eye protection, glove, wind-direction, etc.) and identify when the application is at the most dangerous point, i.e., do not place face over M-44 device, stay upwind, have strong gloves; for DRC-1339 or zinc phosphide concentrate, when mixing small quantities, always mix in a closed container and let the dust and aerosols settle before opening; for aluminum phosphide, in rare instances the dust inside the air-tight container may spontaneously ignite if damp—do not cover—since confinement in this instance can cause an explosion. The aforementioned instances are only a few safety issues that should be demonstrated.

The videos could include the following topics: 1) safe use of M-44's; 2) safe use of LPC collars; 3) safe use and mixing of DRC-1339 concentrate; 4) safe use and mixing of zinc phosphide; 5) safe use of aluminum phosphide; 6) need for participation in an OMMP; 7) different types of gloves and eyewear that protect you from different pesticides; 8) when respirators are to be used and their limitations; 9) disposal of pesticides and spent containers; and 10) storing and securing pesticides.

These 15 minute productions should be used for various training sessions, such as during the monthly training requirement mentioned in the following training plan.

Observation

4.3.3.2 Training Plan

A training plan and documentation tools could be developed and used by each State Director as a guidance document to develop a training plan. Currently, each State Director is responsible for determining who will provide specific and general training.

The applicators obtain the general training from the State during their certification process. However, specific training for WS products, M-44, LPC-1080 collars, zinc and aluminum phosphide, and DRC-1339 are generally the responsibility of the State Directors or their designee. WS should formalize a written program and update training forms to reflect the current requirements.

4.3.3.2.1 I have provided the following formalized plan for consideration, revision, and WS use.

Animal and Plant Health Inspection Service (APHIS)
Wildlife Services (WS)

Pesticide Safety Training Program
Revised:

I. Policy Statement

The Director's Pesticide Safety Training Program, henceforth referred to as the Program, is being implemented to clearly demonstrate my commitment to establish a clear, concise, and accurate pesticide safety training initiative to ensure employees, contractors, and visitors are adequately protected from the adverse affects of pesticide exposure by creating a thorough, continuous and proactive training process. It shall be WS policy to follow all State and Wildlife Services safety policies and procedures and to exceed those requirements to ensure a structured and effective training program is implemented.

II. Training Program Curriculum

1. New Employees' Orientation Training

The District Directors will ensure all new employees are trained on the following topics on the first day of work:

- Emergency procedures.
- Identifying pesticide storage areas and other hazardous locations.

2. General HAZCOM Training

All employees will be trained in basic Hazardous Communication (HAZCOM) training if they will be transporting, applying, or storing pesticides. If state-certified applicators have received this training through the certifying state, they need not be

retrained. The following general training components will be covered:

- How to read and understand a Material Safety Data Sheet (MSDS).
- How to read and understand Pesticide Labels.
- Emergency procedures.
- Signs and symptoms of pesticide exposure.
- Personal protective equipment (PPE).
- Pesticide storage requirements.

3. Pesticide Application Training

All pesticide applicators will be trained in accordance with state requirements and will be state-certified to perform the types of activities required by their position. **Although state-certified applicators receive the General HAZCOM training mentioned above, pesticide-specific training may still be required.**

4. Disposal Training

Many pesticides can be classified as acutely-hazardous waste under the Resource Conservation and Recovery Act (RCRA) and should be treated as such when no longer needed for their useful purpose or if disposal is required. All employees will be instructed to contact the District Supervisor to arrange disposal of pesticides that are out-of-date or are not longer needed.

III. Frequency of Training

1. State-required Training

All certified applicators will attend the appropriate annual training program to keep their certification current.

2. Monthly Training

The District Supervisor will conduct a safety-related presentation for all applicators a minimum of once a month to address one or more of the following topics:

- PPE (use and limitations)
  - Respirators
  - Gloves
  - Protective clothing
- MSDS or Pesticide Label review currently being used

- Emergency procedures including whom to call to report a spill
- Storage requirements
- Documentation requirements

3. New Pesticide Training

A specific pesticide is considered "new" if not routinely applied more than once in a three month period. Before any new pesticide is applied, mixed, or opened, the District Supervisor will ensure that applicator has read and understands the entire pesticide label and MSDS. The District Supervisor will ensure that the label instructions are followed. The District Supervisor will ensure all PPE is provided to the employee and is in good condition. If the applicator has any questions concerning the safe application of the pesticide, the pesticide will not be handled until the safety issue is resolved.

IV. Certification of Competency

New pesticide applicators using a restricted-use pesticide must have on-the-job training provided by another certified applicator, preferably the District Supervisor. Before any new employee is assigned to apply a restricted use pesticide, the District Supervisor must visually observe the proposed new applicator applying the pesticide and demonstrate competency and safety techniques required by the pesticide label and/or use restrictions. The District Supervisor must document that the employee has demonstrated competency of the application and is cleared to proceed with further applications without direct supervision. Direct supervision in this instance means the supervisor need not be present while the employee is performing applications, but must be available by telephone.

V. Recordkeeping

All training will be documented. At a minimum, documentation will include the date, the instructor's name, the names of all attendees, and the topics that are covered.

All applicators will provide a copy of all training certificates (or other proof of training) to the District Supervisor within one week of taking the class.

The District Supervisor will keep a separate, up-to-date training file on each

applicator. In addition to the annual training requirements, the District Supervisor will keep records on the new employee, new pesticide, and monthly training presentations.

No later than January 10 of each year, the District Supervisor will provide the State Director a spreadsheet summary of all applicator training records to include:

- Name of Participant(s)
- Date of Training
- Training Topic(s)

Records shall be kept until the applicator no longer works for WS, or for a minimum of three years, whichever is longer.

In addition, copies of all state-certification renewal forms, permits, and training records will be kept in the State Director's Office.

State Director:_____Date:_____
Wildlife Services, Animal and Plant Health Inspection Service
United States Department of Agriculture

4.4. Review of WS accidents. (Calendar Years 2002-2007)

4.4.1. Strength(s)

Employees at the visited locations were aware that there had been no accidents which produced a possible pesticide poisoning or exposure. However, WS OSS was aware of four incidents of possible sodium cyanide exposure between 2000 and 2007.

4.4.2. Weakness(es)

Workers Compensation records (2000 – 2006) were searched for possible indicators of pesticide poisoning or exposure to M-44 (sodium cyanide) from an accidental discharge. In 2001 one possible sodium cyanide exposure was discovered. This was classified as a no-lost time accident.

Although the results can be tragic, the risk associated with sodium cyanide exposure to WS trained applicators is extremely low if appropriate procedures are followed and old M-44 device replacements are performed. To put the risk in perspective, according to the American Association of Poison Control Centers, there were 163 cases of cyanide

poisonings in 2004 in the US, 8 of which resulted in death (most were intentional suicides). By comparison, 24 deaths were attributed to marijuana use.

The single case of possible sodium cyanide exposure noted above was correctly documented on a CA-1. However, a much further, in-depth accident investigation should have been conducted and documented. It would have been beneficial if the description of the accident, causation factor(s), and the remedy for preventing a recurrence had been advertised, distributed to all State Directors and District Supervisors, and included in the training program for M-44's.

WS provided EnviroHygiene four CA-1's of possible sodium cyanide exposures from 2000 to 2007. This clearly indicates that the Worker's Compensation summary reports do not provide significant, specific, injury-related information. This reinforces the need for a comprehensive process to identify when the SHEWB is to be notified of a severe accident or illness, or when the definition of a severe illness or accident exists.

4.4.3. Recommendation(s) and Observation(s)

Observation

As previously stated, a system should be developed, written, and implemented that would instruct supervisors and employees alike, that severe accidents must be investigated by the SHEWB professionals to ensure accident investigations are conducted and documented to prevent a recurrence. The WS should consult with SHEWB to define the requirements to be included in the policy.

All four possible exposures could have been prevented if appropriate procedures were followed or appropriate goggles were used.

4.5 Evaluation of WS culture as it relates to pesticide safety.

4.5.1. Strength(s)

During the site visits, every applicator, without exception, including the State Directors and District Supervisors demonstrated their commitment to safety by continually pointing out the location of their PPE, the application records, the pesticide inventory locations, the pesticide labels and MSDS, and other equipment they use to

ensure compliance with the regulations. I found this quite refreshing and it was apparent they were dedicated to their jobs and customers.

During the site visits, it was determined that all State Directors and District Supervisors were state-certified pesticide applicators; had obtained State-Dealer Licenses for state and district offices (as required); complied with all Federal and State regulations; had no notices of violations (NOV) or official warnings for at least the last five years even though they were inspected at least annually by state inspectors; and had taken the OIG audit recommendations extremely seriously by adhering to the audit recommendations whenever possible.

4.5.2. Weakness(es)

The pesticide applicators that work with a certain pesticide frequently have the human tendency to become somewhat complacent over time. This is perfectly understandable, but cannot be accepted and the dangers associated with the active ingredients must be reinforced through training on a routine basis. Using the example of the M-44 accidental discharge accident report findings (if there was one) and telling them of what could have prevented it, would have been one of the reinforcing training opportunities.

The lack of safety requirements and PPE requirements on some of the Pocatello Supply Depot manufactured pesticides are somewhat troubling. This lends the user to believe that no PPE should be worn. When one reads the label and sees the skull and crossbones it tells one to immediately take care, but it does not tell one how to take care. When an applicator starts to read the label, they immediately notice that there are copious amounts of information on endangered species, but little on safety. This leads the applicator to wrongly assume that no PPE is required.

The Worker Protection Standard (WPS) and FIFRA requires that the pesticide label clearly indicates what applicators must do to keep them safe during all operations, i.e. mixing, loading, and applying, including what PPE to wear and when to wear it. It is true that the WPS ***does not apply*** when pesticides are applied on livestock or other vertebrae animals, or in or about animal premises; however, many of its requirements are now recognized as industry standards and should be followed.

Pesticide applicators are taught that what is on the label is law, and therefore, to follow the label instructions. If the label does not require any special safety requirements, regardless if they are noted elsewhere, they wrongly assume that no PPE or other safety requirements exist.

For instance, I am not sure if any studies of sufficient reliability exist (I could not find them in my research) that state respirators and eye protection are not required while installing M-44 devices, nor that they are required. The question is should they be required or not required and why?

4.5.3. Recommendation(s) and Observation(s)

Observation

The pesticide label instructions for the Pocatello Supply Depot manufactured pesticides should be evaluated and revised and updated as necessary. If a pesticide label does not need updated, sufficient scientific data should be available to justify the decision not to require PPE or other safety requirements. If revisions are required the label should be revised and submitted to EPA for concurrence and implementation.

EXHIBIT: DHS LETTER GRANTING EXTENSION FROM TOP SCREEN

Office of Infrastructure Protection
National Protection & Programs Directorate
U.S. Department of Homeland Security
Washington, DC 20528

Homeland Security

DEC 21 2007

Dear Sir or Madam:

I am writing to notify you that the Department of Homeland Security (DHS) is granting a time extension for certain facilities required to submit information under federal chemical security regulations. On April 9, 2007, DHS published the Chemical Facility Anti-Terrorism Standards Interim Final Rule (6 CFR Part 27); and on November 20, 2007, DHS published a final list of chemicals of interest, known as Appendix A. *See* 72 FR 17688 and 72 FR 65396. With the publication of the final Appendix A, all provisions of the regulations are in effect.

Upon publication of Appendix A, any facility that possesses any chemical of interest at or above the screening threshold quantity specified in Appendix A, was required to complete and submit information--called a "Top-Screen"--to DHS by January 22, 2008. *See* 6 CFR §§ 27.200(b)(2), 27.210(a)(1)(i).

In the final Appendix A, DHS intended to limit the coverage of that requirement, as related to farmers and other agricultural users of the chemicals of interest, by revising screening thresholds and counting rules for certain chemicals. *See* 72 FR 65406-65407, 65415 (Nov. 20, 2007). Since publication of the final Appendix A, however, additional questions and concerns have been raised regarding the applicability of the Top-Screen requirement to agricultural facilities and operations. DHS is gathering more information about these issues in order to determine whether any modification of the Top-Screen requirements might be warranted.

In addition, the United States Congress has now passed, and the President has signed, the Department of Homeland Security Appropriations Act of 2008, which authorizes DHS to regulate the sale and transfer of Ammonium Nitrate. The law authorizes DHS to develop processes for the registration of Ammonium Nitrate purchasers and for the maintenance of relevant records. Because this law will likely cover many farmers and other agricultural operations, DHS may review its approach towards Chemicals of Interest used in agricultural operations.

Accordingly, given the nature of these agricultural operations and the circumstances described above, I am exercising my authority under 6 CFR § 27.210(c) to extend the deadline for submitting Top-Screens under the following conditions:

(1) Until further notice, or unless otherwise specifically notified in writing by DHS, the Top-Screens will not be required for any facility that is required to submit a Top-Screen *solely* because it possesses any Chemical of Interest, at or above the applicable screening threshold quantity, for use--

(a) in preparation for the treatment of crops, feed, land, livestock (including poultry) or other areas of an agricultural production facility; or

(b) during application to or treatment of crops, feed, land, livestock (including poultry) or other areas of an agricultural production facility;

(2) This extension applies to facilities such as farms (e.g., crop, fruit, nut, and vegetable); ranches and rangeland; poultry, dairy, and equine facilities; turfgrass growers; golf courses; nurseries; floricultural operations; and public and private parks.

(3) This extension does not apply to chemical distribution facilities, or commercial chemical application services.

If you are have any questions about the extension described above, please contact Dennis Deziel, Deputy Director, DHS Compliance Security Compliance Division (dennis.deziel@dhs.gov) or the CSAT Helpdesk at 866-323-2957 or csat.dhs.gov.

Sincerely,

Robert B. Stephan
Assistant Secretary

5 Other Suggestions and Observations

5.1. Improve the Controlled Materials Inventory Tracking System (CMITS) and Instruction Manual.

Complete and accurate pesticide inventories are essential to ensure compliance with Federal and State regulations. Identifying pesticides that contain EPA-listed Extremely Hazardous Substances (EHS), Threshold Planning Quantities (TPQ), Reportable Quantities (RQ); DHS-listed Chemicals of Interest (COI); and shipping requirements in accordance with the Hazardous Materials (HAZMAT) Transportation Act are essential to complying with ever-changing regulations. Thus, this suggestion is to improve the Controlled Materials Inventory Tracking System (CMITS); Web Based and Instruction Manual. Currently, all required fields and substances are not uniform, defined, nor easy to understand. Terminology and some acronyms are not defined.

Suggestions for improvements and related comments are outlined below and are referenced to the CMITS Instruction Manual pages and terminology to assist in identifying the suggesteded changes.

Page 3 -- The first sentence states that the CMITS is designed to inventory all hazardous materials. However, CMITS does not include explosive materials. One statement appears to conflict with the other.

The first sentence should be specific to the hazardous materials that CMITS is designed to inventory. For example:

- Pesticides.
- Immobilization and euthanasia (I&E) drugs.
- Pyrotechnics.

The second sentence should be specific to the materials/explosives that CMITS is not intended to track.

- Pistols and other firearms.
- Blank ammunition.

- Ammunition.
- Alpha Chloralose.
- Trap tranquilizer device/tabs (TTD's)
- Binary Explosives.

The State Director must ensure the CMITS is kept current, accurate, and that inventories are reconciled and reported monthly. Specific information related to the reporting requirements should address:

- the date reports are due

- the "send to" address/email for the report

- Suggest all abbreviations be identified with the full name, i.e., OSS.
- Suggest email addresses be provided for "technical support" and "OSS".
- Suggest Field documents be developed for use when computer access is not readily available. The field documents are not intended to replace State-required application logs. The documents (forms) should be developed with all information needed for appropriate entry into CMITS and included in an Appendix to the manual. These documents could be used by the State and District Directors or the State Director could elect to use his current, written field records. The field tracking documents located in the Appendix could be used to enter pesticide use, disposal, purchase, loss, or sales into the CMITS.
- Suggest a definition section be included after the Introduction. The following words should be considered for inclusion and be clearly defined so user ambiguity is eliminated.

  Applicators. Applicators include WS employees certified by the State to apply pesticides. If applicators other than WS employees are listed, they should be identified as non-WS employees.

  Buyers. Buyers are WS customers that purchase pesticides from WS. Perhaps the word "customer" rather "than buyer" would be a more relevant term.

Distribute. Define distribute. It is unclear what "distribute" means in this instance.

Employees. All WS employees authorized to make changes to the CMITS. If other than WS employees are to be included, a pick-list is required to ensure continuity of understanding, i.e., State employee, County employee, WS employee, etc. This listing is entitled "Employees" or "Employee."

Transactions. Transactions are those actions that include Purchase, Use and Transfer groups, with several subgroups called transaction types. The "Purchase" group would be better defined as "Obtained by." The term "Sale" group might be better classified as "Use" group. Another group should be created and should be identified as "Disposal" with transaction type subgroups as "Damaged", "HW contractor", "by State disposal program", etc. It would also be beneficial to have another Group named "Lost." The subgroups could be "lost", "unaccounted for", "stolen", or "no longer in inventory".

Transfers. Transfers are moving a product between warehouses.

Products. Products are the items being inventoried and are available from a pick-list. Perhaps "Substance" would be a better term.

Vendors. Vendors are those companies authorized by the state to sell pesticides, and from whom you buy.

Warehouses. Warehouses are approved pesticide storage areas and are divided into four subgroups:

1) State Office Storage Areas,

2) District Office Storage Areas,

3) Residential Storage Areas, and

4) Remote Storage Areas.

The term warehouse should be evaluated to see if "storage area" would be a better term suited in this instance.

- Suggest the following acronyms used throughout this instruction manual be

memorized by the users:

CMITS - Chemical Materials Inventory Tracking System

I&E - Immobilization and Euthanasia

MIS 2000 - Not currently identified in manual

OSS - Not currently identified in manual

Page 4.

- Describe how a user accesses "MIS 2000" and how it relates to CMITS.

- Throughout the manual there are instructions to "click" on certain words, such as "click" on CMITS. Fully explain the "click" instruction and be consistent. Should the user left, "double-click" on CMITS selection or do they right, "single-click" on CMITS button, or do they right, "single click" on CMITS selection, etc?

- Superfluous words are used throughout the document; however, words needed for clarity are missing. An example is readily noted in the second instruction box (blue table) of instructions. It should read "the Main Menu screen will appear." The word screen should be included when appropriate.

Page 6.

In the second instruction box (blue table), the word de-active is used. Does this mean to revoke an employee's access? Could it mean remove the employee from the applicators list? Explain the meaning.

Page 9.

In the first instruction box (blue table), provide an email address or phone number for the Point of Contact (POC).

Give a few examples of the most common pesticides currently used in the pick list, or pull-down menu, and place complete list in the Manual appendix.

Page 11.

The pick list from the "Select Transaction Types" screen is confusing. The group names in the "Group" column may be clearer to the user if they were organized as follows: 1) "Obtained by", instead of Purchase; 2) "Used", instead of Sale; 3) Transfer is relevant, and 3) add two additional group columns, "Disposal" and "Unaccounted For". After the group column names are changed, change the "Transaction Type" column to

reflect the appropriate names in the Group column.

Next to the word "Disposal" in the "Section Transaction Types" column, add a note: Contact SOHES at 301-734-6116 to arrange for, and to ensure appropriate disposal.

Page 14.

It may be helpful to the State Director if a logic field (yes/no) was included that identifies if the Vendor will accept the Government VISA purchasing card.

For security purposes, before a new vendor is utilized, it would behoove the State Director, or his designee, to call the appropriate State Department of Agriculture to ensure the vendor's information matches the license information on file with the State.

Suggest another logical data field (yes/no), with the question: "Was an initial security review performed?"

Page 23.

Is the Transfers screen only for transfers from one facility to another, or can this be used for disposals, lost items, etc?

Page 24.

When the transfer is submitted, is it automatically transferred to someone else's inventory? It may be beneficial to instruct the user what happens when they designate material for transfer, or instruct user what additional actions are required.

The aforementioned suggestions are only examples of how the instruction manual and system could be improved.

5.2. The following suggestions will be challenges to IT to incorporate into the CMITS, but should be considered:

- The CMITS has the selection of quantity. What about mass or weight indications?

- Many pesticides need to be reported to various authorities, depending upon concentration, amount, and specific requirements. The tables below illustrate requirements for different regulations as compared to the specific chemical used by WS personnel noted in the pesticide labels and MSDS's.

The following chart(s) contain(s) sample information on a few products

(pesticides) used by APHIS. It would be beneficial if the CMITS system could link the information so that the CMITS system could be used for quantifying information thereby eliminating duplication of effort for supervisors at the State level. One could also link MSDS's and Pesticide Labels to the system to ensure the most up-to-date information is available.

Product (Substance)	Active Ingredient			
		CAS No.	HazMat	Synonyms
M-44	Sodium Cyanide	143-33-9	Marine pollutant Haz Class 6.1 Pkg. Grp. I	Hydrocyanic acid, sodium salts, Cyanogran, Cyanide of Sodium, Cymag Cyanobirk, Prussiate of soda
Rodent Baits	Zinc Phosphide	1314-84-7	Haz Class 4.3	Trizinc diphospide
Compound DRC-1339	3-chloro-p-touidine hydrochloride	62-74-8	Haz Class 6.1 Pkg. Grp. 1	Starlicide
Avitrol	4-Aminopyridine	504-24-5	Haz Class 6.1 Pkg. Grp. 1 UN 2671	Gamma-aminopyridine, P-aminopyridine, AVITROL 200, 4-Pyridinamine, Pyridine, 4-Amino-, 4-Pydridlaminie
Mesurol 75%	methiocarb	2032-65-7		Bay 37344, Carbamic Acid, Draza, Methicarb, Methiocarb, Metiocarbe

5.3. Write and distribute a fact sheet explaining NFPA 704.

WS Directive 2.401, Pesticide Use, Attachment 1, Standard for Storing Pesticides, requires pesticide storage areas to be marked using the NFPA 704 (Diamond) Hazard Ranking System placards (when applicable local regulations require).

A fact sheet containing information similar to the information below should be developed and distributed to all State Offices and should be included in the specific pesticide training program.

NFPA 704 Hazard Identification System

RED = Fire
4 – Very Flammable gases or very volatile flammable liquids
3 – Can be ignited at all normal temperatures
2 – Ignites if moderately heated
1 – Ignites after considerable
0 – Will not burn

YELLOW = Reactive
4 – Readily detonates or explodes
3 – Can detonate or explode but requires strong initiating force or heating under confinement
2 – Normally unstable but will not detonate
1 – Normally stable. Unstable at high temperature and pressure. Reacts with water.
0 – Normally stable.

BLUE = Health
4 – Can cause death or major injury even with medical attention
3 – Can cause serious injury despite medical treatment
2 – Can cause injury. Requires prompt treatment.
1 – Can cause irritation if not treated
0 – Normal material

WHITE = Specific Hazard
OX = Oxidizer
ACID = Acid
ALK = Alkali
COR = Corrosives
W = Use no water
= Radioactive
= Poison

To appropriately mark storage areas:

1. Determine what pesticides are being stored in the particular storage unit.
2. Determine the highest number for each category, i.e., fire, health, reactive, and specific hazard. The most severe hazard (highest number) must be placed on the appropriate diamond (category).
3. After determining the appropriate numbering for each category, place the numbered placard on the storage unit. Small diamonds can be used on pesticide storage cabinets; however, larger diamonds should be used to mark outside storage units.

The following is a list of WS pesticides and their NFPA Hazard Codes obtained by evaluating the pesticide labels and MSDS's.

Pesticide	EPCRA Hazard Classifications	NFPA Hazard Ratings			
		Fire	Health	Reactive	Special
Amyl Nitrite Antidote	Severe Fire Hazard, Acute Health Hazard (Very Toxic)	4	3	2	0
Avitrol	Acute Health Hazard (Toxic)	0	2	0	0
Dichacinone	Slightly Toxic	1	1	0	0
DRC-1339	Slightly Toxic	0	1	0	0

Pesticide	EPCRA Hazard Classifications	NFPA Hazard Ratings			
		Fire	Health	Reactive	Special
Fumitoxin	Fire, Reactivity (water-reactive), Acute Health Hazard (Highly Toxic)	4	4	2	W
Gas Cartridge	Fire, Slightly Toxic	1	1	0	0
LPC 1080 Collar	Acute Health Hazard (Highly Toxic)	0	4	0	0
M-44 Cyanide Capsule	Acute Health Hazard (Very Toxic)	0	3	0	0
Mesurol	Fire	2	0	0	0
Repellent, Snake-a-Way	Acute and Chronic Health Hazard (Carcinogen), Slight Fire Hazard	1	2	0	0
Strychnine (Non concentrate)	Acute Health Hazard, Slight Fire Hazard	1	3	0	0
Zinc Phosphate (Non concentrate)	Slight Fire and Toxic Hazard, and Reactive	1	1	2	0

5.4. Annually review chemical stocks and uses for other regulatory requirements.

The chart in this section, directly following this explanation of requirements, represents a consolidated list of pesticides the WS uses and includes active ingredients (chemicals) subject to reporting requirements under the Emergency Planning and Community Right-to-Know Act (EPCRA), chemicals listed under section 112(r) of the Clean Air Act (CAA), and the Department of Homeland Security (DHS) list of Chemicals of Interest.

Facilities handling chemicals determine whether they need to submit reports under the DHS Facilities, or under sections 302, 304, or 313 of EPCRA for specific chemical, and what reports need to be submitted. Facilities must also determine whether they are subject to accident prevention regulations under CAA section 112(r).

Many pesticide wastes are classified as acutely hazardous wastes as defined by the Resource Conservation and Recovery Act (RCRA).

Spills of pesticides may be reportable under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

The chemicals on the list below are in alphabetical order and contain both the Chemical Abstracts Service (CAS) number and/or the EPA pesticide registration number.

More than one chemical name may be listed for one CAS number because the same chemical may appear on different lists under different names.

The following chart delineates a myriad of requirements for specific chemicals. The columns in the following chart are explained as:

Column (1) **Pesticide.** Name of pesticide used by WS.

Column (2) **EPA Registration No**. The federal registration number required by the Federal Insecticide, Fumigant, and Rodenticide Act (FIFRA). It should be noted that in addition to registration under FIFRA, the States require annual registration.

Column (3) **Restricted Use**. Is the pesticide categorized as a restricted-use pesticide? Yes/No

Column (4). **Active Ingredient**. This is the regulated chemical ingredient in the pesticide.

Column (5). **CAS Number**. This is the Chemical Abstracts Service (CAS) registry number for the active ingredient (chemical).

Column (6) **RCRA Code**. The letter-and-digit code in the RCRA Code column is the chemical's RCRA-listed hazardous waste code. This column includes specific numbers from the RCRA P and U lists only (40 CFR 261.33). P-listed wastes are considered acutely-hazardous wastes and U-listed wastes are considered toxic by EPA.

Column (7) **CERCLA RQ.** This column shows the RQs (in pounds) for chemicals that are CERCLA hazardous substances. Releases of CERCLA hazardous substances, in quantities equal to or greater than their RQ, are subject to reporting to the National Response Center under CERCLA.

Column (8). **EPCRA Threshold Planning Quantity (TPQ).** The presence of Extremely Hazardous Substances (EHS) in quantities at or above the Threshold Planning Quantity (TPQ) at a single facility requires certain emergency planning activities to be contacted. The extremely hazardous substances and their TPQs are listed in 40 CFR Part 355, Appendices A and B. For section 302 EHS's. Local Emergency Planning Committees (LEPCs) must develop emergency response plans and facilities must notify the State Emergency Response Commission (SERC) and LEPC if they receive or produce the substance on site at or above the EHS's TPQ. Additionally, if the TPQ is met, facilities with a listed EHS are subject to the reporting requirements of EPCRA section 311 (provide material safety data sheet or a list of

covered chemicals to the SERC, LEPC, and local fire department) and section 312 (submit inventory forms, usually Tier II, by March 1 of each year. The TPQ for EHS's is 500 pounds or the TPQ, whichever is less.

Column (9) **EPCRA EHS RQ**. Releases of reportable quantities (RQ) of EHSs are subject to state and local reporting under section 304 of EPCRA.

Column (10) **EPCRA Section 313 Toxic Chemicals.** Emissions, transfers, and waste management data for chemicals listed under section 313 must be reported annually as part of the community right-to-know provisions of EPCRA (40 CFR Part 372). The notation "313" in this column indicates that the chemical is subject to reporting under section 313 and section 6607 of the Pollution Prevention Act. Reporting under EPCRA section 313 is triggered by the quantity of a chemical that is manufactured, processed, or **otherwise used** during the calendar year. For most TRI chemicals, the thresholds are 25,000 pounds manufactured or processed or 10,000 pounds of "otherwise used" chemicals.

EPA has recently lowered the reporting thresholds for certain chemicals and chemical categories that meet the criteria for persistence and bioaccumulation. Some chemicals not specifically listed under CERCLA may be subject to CERCLA reporting as part of a category. For example, strychnine sulfate (CAS number 60-41-3), listed under EPCRA section 302, is not individually listed on the CERCLA list, but is subject to CERCLA reporting under the listing for strychnine and salts (CAS number 57-24-9), with an RQ of 10 pounds.

Column (11) **CAA 112(r).** The Clean Air Act (CAA) section 112(r) shows the (Threshold Quantities) TQs (in pounds) for chemicals listed for accidental release prevention. The TQ applies to the quantity of substance in a process, not at the facility as a whole. Under the accident prevention provisions of section 112(r) of the CAA, EPA developed a list of toxic substances and flammable substances.

Column (12) **DHS COI**. This column denotes the screening thresholds for reporting under the Department of Homeland Security (DHS), Chemicals of Interest (COI).

(Column 1) Pesticide	(Column 2) EPA No.	(Column 3) Restricted Use	(Column 4) Active Ingredient	(Column 5) CAS No.	(Column 6) RCRA No.	(Column 7) CERCLA RQ	(Column 8) EPCRA TPQ	(Column 9) EPCRA EHS RQ	(Column 10) EPCRA TRI	(Column 11) CAA 112 r	(Column 12) DHS CDC RQ
Antidote Kit	N/A	N/A	Amyl Nitrite	110-46-3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Avitrol Mixed Grain	11649-4	Yes	4-Amino-pyridine	504-24-5	P008	1000 lbs.	500 lbs.	1000 lbs.	N/A	N/A	N/A
Avitrol Double Strength Corn Chops	11649-5	Yes									
Avitrol Corn Crop (Sparrow)	11649-6	Yes									
Avitrol White Corn (Pigeons)	11649-7	Yes									
Avitrol Double Strength Whole Corn	11649-8	Yes									
Diphacinone	61282-23	No (except above 3 %)	Diphacinone	82-66-6	N/A	N/A	10 lbs.	10 lbs.	N/A	N/A	N/A
DRC 1339 Concentrate (Feedlots)	56228-10	Yes	3-Chloro-4-Methylbenzenenamine	7745-89-3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DRC 1339 (Pigeons)	56228-28	Yes									
DRC 1339 Concentrate (Black Bird Starling)	56228-28	Yes									
DRC 1339 Concentrate (Livestock, Nest and Fodder Depredations)	56228-29	Yes									
DRC 1339 (Raven)	56228-29	Yes									
DRC 1339 Concentrate -- Staging Areas	56228-30	Yes									
Fumitoxin (Tablets)	72959-1	Yes	Aluminum Phosphide	20859-73-8	P006	100 lbs.	500 lbs	100 lbs.	Yes	N/A	Any Amount
Fumitoxin (Pellets)	72959-2	Yes									
Fumitoxin (Bags)	72959-3	Yes									
Gas Cartridges (Small)	56228-2	No	Sodium Nitrate	7631-99-4	N/A	N/A	N/A	N/A	N/A	N/A	400 lbs
Gas Cartridges (Large)	56228-21	No									
LPC 1080	56228-22	Yes	Sodium Fluoroacetate	62-74-8	P058	10 lbs.	10 lbs.	10 lbs.	N/A	N/A	N/A
M44	56228-15	Yes	Sodium Cyanide	143-33-9	P106	10 lbs.	100 lbs.	10 lbs.	Yes	N/A	1001 lbs
Mesurol 75-W	10163-231	Yes	Methiocarb	2032-65-7	P199	13.3 lbs	667 lbs	13.2 lbs	Yes	N/A	N/A
Snake Away	58630-1	No	Naphthlyene	91-20-3	U165	100 lbs.	N/A	N/A	Yes	N/A	N/A
Strychnine Milo Pocket Gopher Barit for Use in Burrow Builders	56228-11	Yes	Strychnine	57-24-9	P108	10 lbs.	100 lbs.	10 lbs.	Yes	N/A	N/A
Strychnine SRO Pocket Gopher Bait for use in Burrow Builders	56228-12	Yes									
Strychnine Milo for Hand Baiting Pocket Gophers	56228-19	Yes									
Strychnine on Oats for Hand-Baiting Pocket Gophers	56228-20	Yes									
Zinc Phosphide on Wheat	56228-3	Yes	Zinc Phosphide	1314-84-7	U249	100 lbs.	500 lbs.	100 lbs.	Yes	N/A	N/A
Zinc Phosphide Concertrate	56228-6	Yes									
Zinc Phosphide on Oats	56228-14	Yes									
ZP Tracking Powder	12455-16	Yes									

5.5. Compose a fact sheet outlining the differences in Personal Protective Equipment (PPE)

The following would be an excellent training fact sheet for when a pesticide label instructs the pesticide applicator to use specific PPE:

5.5.1 Particulate Respirators – (42 CFR 84) – Selection and Use– (29 CFR 1910.134)

The National Institute of Occupational Safety and Health (NIOSH) published a final rule concerning new public health regulation and testing of particulate respirators.

The nine classes of particulate respirators are divided into three levels of efficiencies; 95%, 99% and 99.7%, and three series; N, R, and P. The N-series particulate respirators are to be used in oil-free environments. The R-series particulate respirators can only be worn for one 8-hour shift, while the P-series particulate respirator can be used in oil environments and can be used for more than one shift.

When the pesticide label refers to dust/mist respirators, it is referring to a particulate respirator. Generally, when WS pesticide labels require a dust/mist particulate respirator, an N series, the minimal requirement is the 95% particulate respirator.

Employers must fit-test employees that are required to wear respirators. This includes dust/mist respirators. Fit testing requirements are listed in 29 CFR 1910.134. To obtain fit-testing information, contact your Safety and Health Official first. If you cannot reach your local Safety and Occupational Health Official contact SHEWB at 301-734-6116.

5.5.2 Goggle – Selection

Most accidents are caused by flying particles or objects, with eye injuries from chemical splash a close second. Wearing the wrong kind of eye protection makes up a large percentage of eye injuries. Workers often use their safety glasses to protect from impact and flying particles, however, if the same glasses are used for chemical protection they are often not effective.

There are three types of goggles that provide more protection than safety glasses from impact, dust, and particles (and other hazards). Direct vented goggles allow a direct flow of air from the work environment into the goggle. Indirect vented goggles limit or prevent passage of liquid into the eyes and should be selected when

handling liquid pesticides. Non-vented goggles protect against dust, mist, and liquid and should be selected when the pesticide label requires goggles. The supervisor and employee should evaluate each process closely to determine what PPE should be used during what process. Only a small dose of sodium cyanide (from an accidental discharge of an M-44) in the eyes can cause severe consequences. Although an applicator may have many years of experience, familiarity breeds complacency and is often an accident waiting to happen. Applicators of deadly chemicals should consider respiratory protection and eye protection, even if the label does not require such measures.

Faceshields are considered secondary protection and require that primary protection (eyewear) also be used.

Eye and face protection is codified in 29 CFR 1910.133.

5.5.3 Glove – Selection (29 CFR 1910.138)

This OSHA requirement requires appropriate hand protection be worn in cases where hands may be exposed to hazards from skin absorption of harmful substances. Employers will base the selection on the risk posed by the task being performed. In this case, mixing or applying of pesticides. The regulation requires that the selection of the glove be based on material, thickness, length and other traits, including assessment for chemical exposures.

A hazard assessment begins with examination of the MSDS for the toxic properties in the pesticide's active ingredients. Determine if the chemicals can cause surface affects to the skin, or if they can be readily absorbed by the skin. Take into account the degree of dexterity required, length of potential exposure, chemical concentration, temperature, and the glove material's break-through time. It should be recognized that one type of glove cannot address all types of hazards.

When the pesticide label requires gloves, the correct selection of gloves must be made. Many pesticide labels on stipulate the use of cotton materials or water-proof materials. Regardless, it is good practice to double-glove. A nitrile examination glove should be used under the required glove. Nitrile is a synthetic rubber material that offers chemical and abrasion resistance and is a very good general-duty glove. The use of a proper fitting examination glove still provides the dexterity needed. In most situations this practice will further protect certain water-reactive pesticide chemicals from reacting with sweat from the applicator's hand. Caution should be taken since the nitrile glove

will increase sweating and one should be careful to remove gloves away from products such as zinc and aluminum phosphide.

Nitrile gloves are also recommended over latex gloves because of the high reports of reactions to latex over the past years. People with ongoing latex exposure are at high risk for developing latex reactions which for some people are very serious.

5.6 Update the Pocatello Supply Depot Pesticide MSDS.

In 1993, the American National Standard Institutes (ANSI) developed a comprehensive format to be followed during the creation of MSDS and was revised in 2005. ANSI Z400.1-1993 contains16 parts to standardize and improve readability, consistency, and usefulness of this tool. It should be noted that OSHA does not require following this voluntary standard, but the chemical industry as a whole has adopted it as an industry standard. The WS should seriously consider updating these documents to reflect these current industry standards. Copies of the Standard can be obtained from the ANSI Inc., 25 West 43rd Street, New York, NY 10036, by calling 212-642-4900, or by ordering on-line at URL www.ansi.org.

6 Certification

I certify that, to the best of my knowledge, the information provided in this report is true and accurate as it relates to the scope of work and the information provided by the client.

As a member of EnviroHygiene LLC, I am committed to maintaining the trust and respect of our clients and the public at large through unquestionable integrity, honesty and ethical business conduct.

EnviroHygiene LLC is committed to having and demanding a high ethical standard from its members and from its subcontractors. EnviroHygiene LLC and its subcontractors shall:

- Act impartially to ensure that it is independent in judgment and actions.
- Act honestly and in good faith.
- Use due care and diligence in fulfilling the assigned task(s).
- Inform the Owner/Member of EnviroHygiene LLC, the Contracting Officer, and the Contracting Officer's Representative of any conflicts, or potential conflicts of interest, arising out of the fulfillment of its duties.
- Treat all information as confidential. Such confidential information remains the property of the source from which it was obtained. EnviroHygiene LLC shall not disclose it, or allow it to be disclosed unless that disclosure is required by law or has been authorized by the source from whom the information was received.

EnviroHygiene LLC will promptly investigate any alleged noncompliance with this Policy and will immediately disclose the results to the client.

Respectfully Submitted,

Arthur W. Benson
Operations Manager/Member
EnviroHygiene LLC

Seal

Appendix A-1

Wildlife Services (WS)
Pesticide Safety Review Planning Tool

Work Plan

- List Wildlife Services Pesticide Application and Storage Policies to be evaluated.
- Identify four sites to be evaluated. Obtain Department of Environment and Department of Agriculture applicable regulations for identified locations.
- Identify site visit contacts.
- Develop a site visit screening tool sheet that explains information needed to be provided to reviewer by site contacts before and during site visit.
- Schedule site visits.
- Obtain injury/illness report summaries for WS. Determine which injuries/illnesses are related to pesticide safety.
- Obtain motor vehicle accident information relating to transportation of pesticides.
- List current pesticide training.
- List all other applicable USDA/APHIS policies, manuals, or directives related to pesticide transportation, handling and storage.
- Review pesticide spill reporting and spill reports.

Review Aforementioned Information

- Identify major safety topics.
- Identify if State regulations differ from Federal regulations.
- Identify where State regulations are more stringent than Federal regulations.
- Determine if major safety topics are appropriately covered in their policies, and if not, make recommendations for improvements or inclusion.

Site Visits

Prior to visits:

- Send screening tool sheet to sites before site visit.
- Request travel and lodging information from site contact.
- Review screening tool sheet information provided by site contact prior to arrival.
- Review applicable State regulations.
- Identify local jurisdiction contacts, i.e., fire departments, agriculture extensions service offices, and regulatory officials, and attempt to make appointments during site visits.

During visits:

- Perform site familiarization.
- Witness actual work “in field.” Shadow workers.
- Conduct confidential interviews with APHIS employees at site.

- Conduct interviews with outside agency officials.
- Write site visit results while still on site. Return to site if results need further information or explanation.

After visits:

- Send summary of each site visit to APHIS Project Manager.
- Keep appropriate travel receipts and present to APHIS Project Manager as requested.

DRAFT REPORT

- Write draft report to include the following sections:

Cover Sheet

Table of Contents

1. Introduction
2. Scope
3. Executive Summary
4. Document Review
   a. Weaknesses
   b. Strengths
   c. Recommendations
5. Site Visits
   a. Weaknesses
   b. Strengths
   c. Recommendations
6. Other Recommendations
7. Certification

Appendices and Tables (as necessary)

- Obtain comments from APHIS
- Revise as necessary
- Obtain APHIS Project Officer's approval for finalizing report.

Final Report

- Include photographs, charts, and other visual applications as necessary.
- Make final format changes as necessary.
- Finalize report.
- Have three copies made of final report; one for FOH, and two for APHIS Project Manager.
- Digitize final report in PDF form and provide to APHIS Project Officer.

Appendix A-2

Site Visit Screening Tool Sheet
Date:

Facility Information

Name:

Address:

Management Unit/Organizational Structure:

Provide Brief Description of Mission:
(or attach website information that explains mission)

Facility Contact Information

Name:	Title:
Telephone:	Cell Phone:
Email:	

Interview Schedule

Identify those to be interviewed and briefly describe their tasks related to pesticide application, transportation, or handling.

Name:	Title:
Tasks:	
Name:	Title:
Tasks:	

Appendix A

Please provide the following information.

Has there been any:	Yes	No
1. spills of pesticides?	❑	❑
2. traffic accidents with pesticides?	❑	❑
3. injuries or illnesses caused by pesticide exposure?	❑	❑
4. notices of violations or other deficiencies noted by State or local regulators?	❑	❑
5. Grievances or complaints from employees (or others) made concerning pesticide safety?	❑	❑
6. current (within the last year) pesticide safety classes conducted? (Please include in-house training classes.)	❑	❑

If the answers to questions 1 through 6 above is yes, please number your answers and briefly explain.

EnviroHygiene will be reviewing the following:

Licenses/Permits	Training Records
Pesticide Inventories	Material Safety Data Sheets
Personal Protection Equipment (PPE)	PPE Storage and Cleaning Area
Pesticide Storage Area(s)	Local agreements
Standard Operating Procedures (SOP)	Pesticide Transportation Vehicles
Decontamination Equipment/Areas	Pesticide Waste Generation and Disposal

Please have the aforementioned items accessible for reviewing.

WS DIRECTIVES PESTICIDE SAFETY AUDIT CHECKLIST

Date: Name of Auditor:

Location/Site:

All items checked (☑) "NO" indicates a possible deficiency. Place the appropriate number in the "REMARKS" section below and provide a brief description of why "NO" was checked.

Directive Criteria	YES	NO	N/A
SECTION 1. DO WILDLIFE SERVICE (WS) SUPERVISORS:			
1. Promote safety among employees? *Wildlife Services Directive (WSD 2.601)*			
2. Identify hazards, including wildlife –borne diseases, in advance of work assignments? *(WSD 2.601)*			
3. Provide information, training, and personal protective equipment (PPE), to optimize employee safety? *(WSD 2.601)*			
4. Are accidents involving aircraft or having a human casualty immediately reported to the Director? *(WSD 2.601)*			
5. Know pertinent laws and regulations and relate them to their employees? *(WSD 2.210)*			
6. Ensure that pesticides that are no longer usable are disposed of in accordance with EPA regulations? *(WSD 2.401)*			
7. Does the State Director verify the accuracy and timeliness of residential/vehicle self-inspection checklists and APHIS Forms 265-5? *(WSD 2.401)*			
8. Does the State Director take corrective actions on deficiencies noted in the inspections? *(WSD 2.401)*			

Directive Criteria	YES	NO	N/A
SECTION 2. DO WS EMPLOYEES:			
1. Adhere to safety regulations? *(WSD 2.601)*			
2. Use PPE properly? *(WSD 2.601)*			
3. Immediately report unsafe conditions to their supervisor? *(WSD 2.601)*			
4. Cooperatively work with the supervisor to minimize hazardous working conditions?			
5. Immediately report accidents to their supervisor? *(WSD 2.601)*			
6. Participate in the APHIS Occupational Medical Surveillance Program (OMSP) when necessary (including supervisors)? *(WSD 2.601)*			
7. Advise their physician that they may be exposed to serious diseases, i.e., rabies, hantavirus, plaque, Lyme disease, psittacosis, Chlamydia psittacosis, or histoplasmosis? *(WSD 2.601)*			
8. Conduct official duties in compliance with all Federal, State, and local laws and regulations? *(WSD 2.210)*			
9. Are all pesticides used registered with EPA and the State? *(WSD 2.401)*			
10. Are all WS applicators State-certified? *(WSD 2.401)*			
11. Are all pesticides applied by WS State-certified applicators or the applicator is under direct supervision of a WS State-certified applicator? *(WSD 2.401)*			
12. Are WS restricted-use pesticides transferred or sold to non-WS personnel? *(WSD 2.401)*			

Directive Criteria	YES	NO	N/A
SECTION 3. GENERAL REQUIREMENTS			
1. On private property, if others are using a similar pesticide on the same target, does the WS applicator immediately remove WS equipment, signs, and materials and notify the property owner? *(WSD 2.401)*			
2. Are pesticide labels and Material Safety Data Sheets (MSDS) provided to WS personnel and other potential users, and are they readily available at storage sites (to include vehicles and residences)? *(WSD 2.401)*			
3. Are pesticides stored in a locked or secure box, building, or vehicle when not in use? *(WSD 2.401)*			
4. Are appropriate warning signs or symbols displayed at appropriate locations? *(WSD 2.401)*			
5. Are all unusable pesticides disposed of in accordance with the State Director's instructions and in accordance with EPA guidelines? *(WSD 2.401)*			
6. Has the State Director established proper accounting, monitoring, and recordkeeping procedures for all pesticides used in their program? *(WSD 2.401)*			
SECTION 4. RECORDKEEPING REQUIREMENTS			
1. Are inventory records up-to-date? *(WSD 2.401)*			
2. Are the inventory records kept for at least two years? *(WSD 2.401)*			
3. Is the local information accurately inputted into the Control Materials Inventory Tracking System (CMITS)? *(WSD 2.401)*			

Directive Criteria	YES	NO	N/A
4. At a minimum, does the inventory contain the: a. Brand or product name? b. EPA registration number? c. Amount of pesticide applied? d. Total amount of pesticide applied? e. The location of the application? f. The size of the area treated? g. The crop, commodity, stored product, or site treated? h. The month, day, and year of application? i. The WS applicator and certification number? *(WSD 2.401)*			
SECTION 5. WORKSITE STORAGE REQUIREMENTS			
1. Is the pesticide storage cabinet/box approved for use by WS? *(WSD 2.401)*			
2. Is the storage site approved by WS for overnight storage? *(WSD 2.401)*			
3. Does the applicator have a maximum one-week's supply of pesticide in his/her possession, unless specifically exempted by the supervisor? *(WSD 2.401)*			
4. Does the storage area have a current inventory and appropriate information? *(WSD 2.401)*			
5. Are all containers at WS approved worksites closed? *(WSD 2.401)*			
6. Are procedures in place and are they being followed to ensure only WS or WS-approved personnel have access to the pesticides? *(WSD 2.401)*			
7. Are the pesticides separated from food and personal contact items such as clothing, lines, furniture, animal feeds? *(WSD 2.401)*			

Directive Criteria	YES	NO	N/A
8. Are the pesticides stored in such a manner that minimizes contact with excessive heat, cold, or moisture? *(WSD 2.401)*			
9. Is secondary containment provided? *(WSD 2.401)*			
10. Are unattended pesticides secured (locked-up) to prevent theft or unauthorized use? *(WSD 2.401)*			
11. Are incompatible pesticides separated from each other? *(WSD 2.401)*			
12. If applicable, do offices or warehouses storing pesticides have an Occupant Emergency Plan? *(WSD 2.401)*			
13. Has the State Director made sure that banned or unapproved pesticides are not located at WS storage locations? *(WSD 2.401)*			
SECTION 6. CENTRAL STORAGE/DISTRIBUTION FACILITES			
1. Is the storage cabinet/room made of non-combustible materials? *(WSD 2.401)*			
2. Is the storage cabinet/room made of substantial materials to prevent unauthorized access (break-ins, theft, etc.)? *(WSD 2.401)*			
3. If a separate room made of non-combustible materials is used, is it properly ventilated? *(WSD 2.401)*			
4. Is a "No Smoking" sign posted? *(WSD 2.401)*			
5. Is a fire extinguisher located within 30 feet of storage cabinet? *(WSD 2.401)*			
6. Is a spill kit located near the storage area? *(WSD 2.401)*			
7. Is there an inventory at the site? *(WSD 2.401)*			

Directive Criteria	YES	NO	N/A
8. Are the cabinets and the outside doors of storage areas identified with the NFPA 704 symbol (diamond) and the State-approved sign? *(WSD 2.401)*			
9. Are MSDS' readily available? *(WSD 2.401)*			
10. Are emergency procedures, including telephone numbers, in plain site of storage area? *(WSD 2.401)*			
11. If transfer operations occur:			
a. Is there an emergency eyewash/shower available? *(WSD 2.401)*			
b. Is PPE available? *(WSD 2.401)*			
c. Are there scales and other transfer equipment available?			
SECTION 7. RESIDENTIAL STORAGE SITES			
1. Is the storage site approved (in writing) by the State Director? *(WSD 2.401)*			
2. Is the pesticide stored inside a WS-approved, locked, pesticide cabinet or box? *(WSD 2.401)*			
3. Is the storage site inaccessible to family or visitors? *(WSD 2.401)*			
4. Is the storage area located in a garage or an outside structure and not in the residence? *(WSD 2.401)*			
5. Is the storage area in a separate area and not located in a community dwelling, i.e., apartment complex, condominium, etc? *(WSD 2.401)*			
6. Is the Self-Inspection Checklist being used to inspect residential storage sites? *(WSD 2.401)*			

Directive Criteria	YES	NO	N/A
SECTION 8. PESTICIDE CONTAINERS			
1. Are all containers properly labeled and do original containers have original label? *(WSD 2.401)*			
2. Are all containers free from rust and leaks? *(WSD 2.401)*			
SECTION 9. WS-APPROVED CABINETS AND BOXES			
1. Are cabinets/boxes made of metal, hard high-density plastic or another non-combustible material of sufficient strengths to minimize the possibilities of break-in? *(WSD 2.401)*			
2. Are fire and weather-resistant materials used? *(WSD 2.401)*			
3. Do they have sturdy hinges, locks, and hasps? *(WSD 2.401)*			
4. Are they properly and clearly labeled to indicate hazard? *(WSD 2.401)*			
5. Are they dedicated to the storage of pesticides only? *(WSD 2.401)*			
SECTION 10. TRANSPORATION			
1. Are all pesticides stored in a WS-approved storage unit? (If large bags of bait are to be transported, they do not have to be in locked cabinets, but the vehicle must be under the constant supervision of operator and must not be visible to the public, nor left unattended.) *(WSD 2.401)*			

Directive Criteria	YES	NO	N/A
2. Are storage units bolted or otherwise secured to vehicle if a pickup truck is used? *(WSD 2.401)*			
3. Is the vehicle locked at all times when unattended? *(WSD 2.401)*			
4. Highly-toxic pesticides are not transported in the cab of the vehicle with the driver or passengers? *(WSD 2.401)*			
5. Are MSDS and labels available at all times (in the vehicle)? *(WSD 2.401)*			
6. Is the vehicle authorized for use by the State Director? *(WSD 2.401)*			
7. Is the vehicle prohibited from being parked in a community dwelling? *(WSD 2.401)*			
SECTION 11. TRAINING			
1. Do the State or District Directors have a training program for employees? *(WSD 2.401)*			
2. Does the training include: a. Review of MSDS'? b. Label requirements? c. Storage requirements? d. PPE use and storage? e. Emergency procedures? f. Proper waste disposal? g. HAZCOM training (in accordance with Chapter 10 Section 8, APHIS Safety and Health Manual? *(WSD 2.401)*			
SECTION 12. INSPECTIONS			
1. Are inspections being conducted biannually? *(WSD 2.401)*			

Directive Criteria	YES	NO	N/A
2. Is the APHIS Safety Inspection Checklist, APHIS Form 256-5 being used for worksite storage areas (residential and vehicle storage areas can use the abbreviated checklist located in the Directive)? *(WSD 2.401)*			
3. Do residential/vehicle storage usage applicators send a self-inspection checklist to the State Director at least twice a year? *(WSD 2.401)*			
SECTION 13. EMERGENCY PROCEDURES			
1. Have emergency procedures been developed for each storage location? *(WSD 2.401)*			
2. Do the emergency procedures include: a. Evacuation plans? b. Emergency contacts and phone numbers? c. Emergency equipment, i.e., spill kits, fire extinguisher, PPE? d. Emergency notification requirements? *(WSD 2.401)*			
3. Has the local fire department been notified of hazards and location of pesticides? *(WSD 2.401)*			
4. Do the emergency procedures include whom to notify if there is a spill or accidental release? *(WSD 2.401)*			
SECTION 14. WASTE DISPOSAL			
1. Are unusable pesticides (or pesticides no longer needed for their intended purpose) appropriately disposed of in accordance with Federal, State, and local regulations? *(WSD 2.401)*			

Directive Criteria	YES	NO	N/A
2. Has the Safety, Health, and Employee Wellness Branch (SHEWB) been consulted to ensure disposal requirements are met? *(WSD 2.401)*			
3. If disposal is necessary, has the State Director requested SHEWB's assistance to ensure approriate hazardous waste disposal is performed? *(WSD 2.401)*			
REMARKS			

Directive Criteria	YES	NO	N/A
REMARKS			

WS Directive 2.415 M-44
Use and Restrictions

Audit Checklist

Date: Name of Auditor:

Location/Site:

All items checked (☑) "NO" indicates a possible deficiency. Place the appropriate number in the "REMARKS" section below and provide a brief description of why "NO" was checked.

Restricted-Use Requirement	YES	NO	N/A
1. Is the applicator trained in safe handling, uses of antidote kit placement and recordkeeping?			
a. Is the capsule or device used only by Wildlife Service (WS) personnel?			
b. If not, is the person using the device under the direct supervision of APHIS personnel and does the user agency have an agreement with WS?			
2. Is the device used only on coyotes, grey and red foxes, and feral dogs suspected of preying on livestock, poultry, or threatened or endangered species or are they vectors of a communicable disease?			
3. Is the device used within 7 miles of a ranch that has experienced the depredation? (See Directive 2.415 for exceptions.)			
a. Is there evidence and if so, have the losses been documented?			

Restricted-Use Requirement	YES	NO	N/A
4. Are there indications that the device **is not used** in: a. National forests or other Federal lands set aside for recreational use? b. areas where exposure to the public and family and pets are probable? (Except for endangered species protection)			
5. Does the applicator have a map prepared in consultation with the U.S. Fish and Wildlife Service that defines threatened and endangered species areas?			
6. Does a person other than the applicator know the field locations of the devices?			
7. Have other agencies that may use the devices in the same area at the same time been identified and has information of placement been shared and coordinated?			
8. Are there indications that the applicator **does not** put the device: a. within 200 feet of any lake, stream, or river? b. where food stocks are planted? c. within 50 feet of a public road or where it can be seen from a public road?			

Restricted-Use Requirement	YES	NO	N/A
9. Are the maximum density rules followed? a. No more than 10 devices within 100 acre pasture lands and no more than 12 in one square mile of pasture land? b. No more than four devices around a draw station and within 30 ft. of carcass? c. No more than five draw stations per square mile?			
10. Is the supervisor annually (a minimal requirement) checking records, warning signs, and devices of each applicator to ensure compliance with regulations?			
11. Are all devices checked at least once a week while in the field?			
12. Are damaged or defective devices removed from the field?			
13. Are the devices removed from the field if the predator has not visited the site within 30 days?			
14. Do WS applicators use only cyanide capsules (EPA Registration No. 56228-15) which contain a blaze-orange marker particle?			
15. Are WS applicators instructed not to use the capsules containing light yellow particles?			
16. Are the ejectors marked with the words “US Gov’t” or “Property of the Government"?			

Restricted-Use Requirement	YES	NO	N/A
17. Have any WS personnel, cooperative, or public involved in the use, storage, application, or disposal of this pesticide or device ever expeience an accident or exposure? If yes, was the incident reported immediately to the State Director?			
18. Are the devices stored in a secure location and are they locked to prevent unauthorized access?			
Remarks:			

Restricted-Use Requirement	YES	NO	N/A
REMARKS - continued.			

WS Directive 2.240
Livestock Protection Collar
Audit Checklist

Date: Name of Auditor:

Location/Site:

All items checked (☑) "NO" indicates a possible deficiency. Place the appropriate number in the "REMARKS" section below and provide a brief description of why "NO" was checked.

DIRECTIVE REQUIREMENTS	YES	NO	N/A
1. Is the applicator certified and trained in specifics of the Livestock Protection Collar?			
2. Are collars used identified with an EPA identification number 56228-22, which can only be used by WS applicators?			
3. Has the State Director contacted the State regulating agencies and determined who will provide this product-specific training?			
4. Is the registration for private certified applicators kept separate from the WS registration?			
5. Is *Technical Bulletin for Sodium Fluoroacetate (Compound 1080) Livestock Protection Collar* available at the State Director's office and readily available to the applicator?			
6. Is the *Applicator Manual for Compound 1080 in Livestock Protection Collars*, Texas Agricultural Extension Service B-1509, available at the State Director's office and readily available to the applicator?			

REMARKS:

WS Directive 2.265
Accountability and Oversight of Hazardous Materials
Audit Checklist

Date: Name of Auditor:

Location/Site:

All items checked (☑) "NO" indicates a possible deficiency. Place the appropriate number in the "REMARKS" section below and provide a brief description of why "NO" was checked.

DIRECTIVE REQUIREMENTS	YES	NO	N/A
1. Are quarterly inventories being conducted?			
2. Are the quarterly inventories entered into the Control Materials Inventory Tracking System (CMITS).			
3. Has the inventory been reconciled?			
4. Has the State Director appointed a reviewing official this fiscal year (FY)? Reviewing officials can be a District Supervisor, Assistant District Supervisor, or a Collateral Duty Safety Officer?			
5. Has a physical inventory been completed by the user in this FY?			
6. Has the user submitted a certified and signed inventory to the appropriate District/State/Regional office?			
7. Has the physical inventory been completed by the reviewing official this FY?			
8. Have any discrepancies in the inventory been reconciled by the user and their supervisor?			
9. Has the inventory been reviewed by the immediate supervisor, or their designee, within 14 days of receipt?			

DIRECTIVE REQUIREMENTS	YES	NO	N/A
10. Have discrepancies in the CMITS been corrected within 30 days of physical inventory?			
11. Have the inventories been signed by the user and reviewing official?			
12. Have the inventories been submitted to the State Director?			
13. Has the State Director made sure that the inventory is accurate and reconciled?			
14. Has the State Director submitted annual State inventories using the CMTIS form "Transaction Summary by Product Report" to the appropriate regional office?			
15. Has the State Director signed the aforementioned "Report"?			
16. Has the Regional Director signed the "Report" and submitted it to the Operational Support Staff (OSS) at Headquarters?			
17. Have non-inventory deficiencies noted in the physical inventory inspection been corrected within 60 days?			
18. Has the immediate supervisor followed-up on the aforementioned discrepancies before the next quarterly inventory?			
19. Has a state program evaluation been completed this FY?			
20. If yes, was the state program evaluation review team comprised of regional, State, and headquarters personnel?			
21. If yes, was at least one district and one specialist storage site inspected?			

DIRECTIVE REQUIREMENTS	YES	NO	N/A
REMARKS:			

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Appendix B

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1. **National Environmental Policy Act of 1969 (NEPA)**; 42 U.S.C. 4321-4347.

   NEPA is the basic national charter for protection of the environment. It establishes policy, sets goals, and provides means for carrying out the policy. *(Codified as 40 Code of Federal Regulation (CFR) Parts 1500-1508)*.

2. **The Clean Air Act (CAA)**; 42 U.S.C. s/s 7401 et seq. (1970).

   The Clean Air Act is the comprehensive Federal law that regulates air emissions from area, stationary, and mobile sources. This law authorizes the U.S. Environmental Protection Agency to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. *(Codified as 40 CFR Parts 50-99, and 110-112)*.

3. **The Clean Water Act (CWA)**; 33 U.S.C. ss/1251 et seq. (1977).

   The Act established the basic structure for regulating discharges of pollutants into the waters of the United States. It gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry. The Clean Water Act also contained requirements to set water quality standards for all contaminants in surface waters. The Act made it unlawful for any person to discharge any pollutant from a point source into navigable waters unless a permit was obtained under its provisions. It also funded the construction of sewage treatment plants under the construction grants program and recognized the need for planning to address the critical problems posed by nonpoint source pollution. *(Codified as 40 CFR Parts 100-136, 230-233, 401-471, and 501-503)*.

4. **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA or Superfund) 42 U.S.C. s/s 9601 et seq. (1980).

   The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided

broad Federal authority to respond directly to releases, or threatened releases, of hazardous substances that may endanger public health or the environment. Over five years, $1.6 billion was collected and the tax went to a trust fund for cleaning up abandoned or uncontrolled hazardous waste sites. *(Codified as 40 CFR Parts 300-311, 355, and 373).*

5. **The Emergency Planning & Community Right-To-Know Act (EPCRA)**; 42 U.S.C. 11011 et seq. (1986).

   Also known as Title III of SARA, EPCRA was enacted by Congress as the national legislation on community safety. This law was designed to help local communities protect public health, safety, and the environment from chemical hazards. *(Codified as 40 CFR Parts 302, 377, 370, and 372).*

6. **The Endangered Species Act (ESA)**; 7 U.S.C. 136;16 U.S.C. 460 et seq. (1973).

   The Endangered Species Act provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. EPA's decision to register a pesticide is based in part on the risk of adverse effects on endangered species as well as environmental fate (how a pesticide will affect habitat).

7. **Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)**; 7 U.S.C. s/s 135 et seq. (1972).

   The primary focus of FIFRA was to provide federal control of pesticide distribution, sale, and use. EPA was given authority under FIFRA not only to study the consequences of pesticide usage but also to require users (farmers, utility companies, and others) to register when purchasing pesticides.

   Through later amendments to the law, users must also take exams for certification as applicators of pesticides. All pesticides used in the U.S. must be registered (licensed) by EPA. Registration assures that pesticides will be properly labeled and that if used in accordance with specifications, will not cause unreasonable harm to the environment. *(Codified as 40 CFR Parts 150-189).*

   Under FIFRA, EPA can issue emergency suspensions of certain pesticides to cancel or restrict their use if an endangered species will be adversely affected. *(Codified as 50 CFR Part 17).*

8. **The Occupational Safety and Health Act (OSHA)**; 29 U.S.C. 651 et seq. (1970)

   Congress passed the Occupational and Safety Health Act to ensure worker and workplace safety. The goal of Congress was to ensure employers would provide their workers a place of employment free from recognized hazards to safety and health such as, exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. *(Codified as 29 CFR Part 1910)*

9. **The Resource Conservation and Recovery Act (RCRA)**; 42 U.S.C. s/s 321 et seq. (1976)

   RCRA (pronounced "rick-rah") gave EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous wastes. *(Codified as 40 CFR Parts 240-242)*.

10. **The Safe Drinking Water Act (SDWA);** 42 U.S.C. s/s 300f et seq. (1974)

    The Safe Drinking Water Act was established to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources. *(Codified as 40 CFR 141-149)*.

11. **The Superfund Amendments and Reauthorization Act (SARA);** 42 U.S.C.9601 et seq. (1986)

    The Superfund Amendments and Reauthorization Act (SARA) amended the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) on October 17, 1986. SARA reflected EPA's experience in administering the complex Superfund program during its first six years and made several important changes and additions to the program. *(Codified as 40 CFR 302, 377, 370, and 372)*.

12. **Facility Anti-Terrorism Standards**, Homeland Security Appropriations Act of 2007 (Section 550).

    The U.S. Department of Homeland Security has released an interim final rule that imposes comprehensive federal security regulations for high-risk chemical facilities. This rule establishes risk-based performance standards for the security of our nation's chemical facilities. It requires covered chemical facilities to prepare Security Vulnerability

Assessments, which identify facility security vulnerabilities, and to develop and implement Site Security Plans, which include measures that satisfy the identified risk-based performance standards. It also allows certain "covered" chemical facilities, in specified circumstances, to submit Alternate Security Programs in lieu of a Security Vulnerability Assessment, Site Security Plan, or both. *(Codified as 6 CFR Part 27).*

State Law

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1. **Title 15 Department of Agriculture, Subtitle 05 Pesticide Use Control**; Code of Maryland Regulations (COMAR) 15.05.01.
2. **Pesticide Applicator Certification and Business Licensing Requirements**; Pesticide Regulation Fact Sheet.

LOUISIANA

1. **Louisiana Pesticide Law**; Louisiana Department of Agriculture and Forestry, Office of Agricultural and Environmental Sciences, Pesticide and Environmental Programs; Title 3, Chapter 20; § 3201; 1996.
2. **Advisory Commission on Pesticides**; Title 7; Agriculture and Animals; Part XXIII Pesticide; Chapter 1.

NEW MEXICO

1. **New Mexico Pesticide Control Act**; Chapter 76, Article 4; New Mexico Department of Agriculture.
2. **Pesticides;** Pesticide Compliance Group; Fact Sheet; New Mexico Department of Agriculture.
3. **Pesticide Applicator Licensing Guide**; Pesticide Compliance group; New Mexico Department of Agriculture.
4. **Are you ready for your inspection?**; Pesticide Compliance group; New Mexico Department of Agriculture.

COLORADO

1. **Colorado Pesticide Applicator Act**; Title 35, Article 10: Sections 35-10-101 to 35-10-128 Colorado Department of Agriculture Plant Industry Division.
2. **Colorado Pesticide Act**; Title 35, Article 9: Sections 35-9-101 to 35-9-128;Colorado Department of Agriculture Plant Industry Division.
3. **Colorado Seed Act**, Title 35, Article 27; Sections 35-27-101 to 35-27-125; Colorado Department of Agriculture Plant Industry Division.
4. **Rodent and Predatory Animals Control**, Title 37, Article 7, Sections 102-202;Colorado Department of Agriculture Plant Industry Division.

Wildlife Services' Directives

1. **Directive 2.210**, *Compliance with Federal, State, and Local Laws and Regulations*; 03/01/04
2. **Directive 2.401**, *Pesticide Use*; 02/17/04.
3. **Directive 2.415**, *M-44 Use and Restrictions*; 02/18/04.
4. **Directive 2.420**, *Livestock Protection Collars*; 02/17/04.
5. **Directive 2.465**, *Accountability and Oversight of Hazardous Materials*; 11/23/04.
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7. **Controlled Materials Inventory Tracking System Web-Based**; User Guide; September 1, 2007, Version 1; USDA, APHIS, WS.

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3. **Armed Forces Pest Management Board**, Technical Guide No. 7, *Installation Pesticide Security*.
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7. **Letter of Interpretation to Mr. Valoski**; from Regulatory Review and Reinvention, Office of Hazardous Materials Standards; 11/2/05.
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11. **Pesticide Storage**; Clemson University; 2006.
12. **Pesticide Storage and Security**; Illinois Pesticide Safety Facts and Updates; University of Illinois at Urbana-Champaign, 10/01.
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14. **Pesticide User's Guide**; Bulletin 754; Ohio State University Extension.
15. **Store Pesticides Safely**; Pesticide Information Program; Information Sheet; Clemson University Extension; 9/2001.
16. **Storage of Pesticides; An Environmental Self-Assessment**; Clemson University

Extension; 2/1996.

17. **Transporting Pesticides**; Safety Recommendations and Legal Requirements; Pesticide Safety Fact Sheet; PennState; 9/13/2000.
18. **What you need to know about...Protecting Yourself When Using Pesticides**; PennState; 2003.

Appendix C

LIST OF ACRONYMS AND ABBREVIATIONS

AAPSE	American Association of Pesticide Safety Educators
AI	Active Ingredient
APHIS	Animal and Plant Health Inspection Service
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAS	Chemical Abstract Serial Number
CDC	Centers for Disease Control
CEMP	Code of Environmental Management Principles
CES	Cooperative Extension Service
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHEMTRAC	Chemical Transportation Emergency Center
CMA	Chemical Manufacturer's Association
COI	Chemicals of Interest
COMAR	Code of Maryland Regulation
DHS	Department of Homeland Security
DOT	Department of Transportation
EHS	Extremely Hazardous Substance
EMS	Environmental Management System
EO	Environmental Objectives
E.O.	Executive Order
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
FM	Factory Mutual

FEMA	Federal Emergency Management Agency
FFCA	Federal Facility Compliance Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FR	Federal Register
FY	Fiscal Year
FYI	For Your Information
GLP	Good Laboratory Practices
GSA	General Services Administration
HAZMAT	Hazardous Materials
HCS	Hazard Communication Standard
HMTA	Hazardous Materials Transportation Act
HW	Hazardous Waste
IAG	Interagency Agreement
ID	Identification Number
IPM	Integrated Pest Management
ISO	International Organization for Standardization
LEPC	Local Emergency Planning Committee
MOU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
NASDA	National Association of State Departments of Agriculture
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHPA	National Historical Preservation Act
NIOSH	National Institutes of Occupational Safety and Health
NOV	Notice of Violation
NPIC	National Pesticide Information Center
NPIRC	National Pesticide Information Retrieval Center
NRC	National Response Center
NTP	National Toxicology Program - HHS
OC	Organochlorinted (Pesticide)

OMB	Office of Management and Budget
OPA	Oil Pollution Act
OP	Organophosphate (Pesticide)
OPP	Office of Pesticide Programs
OSHA	Occupational Safety and Health Administration
OSHAct	Occupational Safety and Health Act
OSS	Office of Staff Services (WS)
P2	Pollution Prevention
PAT	Pesticide Applicator Training
Pb	Lead
POP	Persistent Organic Pesticide
POTW	Publicly-Owned Treatment Works
PPA	Pollution Prevention Act
PPB	Parts per Billion
PPE	Personal Protective Equipment
PPLS	Pesticide Product Labeling System
PPM	Parts per Million
PPT	Parts per Trillion
PRP	Potentially Responsible Party
PSEC	Pesticide Safety Education Center
PSP	Pesticide Safety Program
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
REI	Restrictive Entry Intervals
RQ	Reportable Quantity
RUP	Restricted-Use Pesticide
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SERC	State Emergency Response Commission
SHEWB	Safety, Health and Employee Wellness Branch
SHPO	State Historic Preservation Office

SIC	Standard Industrial Classifications
SOW	Statement of Work
SPCC	Spill Prevention, Control, and Countermeasures
TPQ	Threshold Planning Quantity
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, and Disposal Facility
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
UST	Underground Storage Tank
UL	Underwriter's Laboratory
VOC	Volatile Organic Compound
WS	Wildlife Services
WPS	Worker Protection Standards

Listing of all Pesticides Reviewer Recommendations

Directives, Manuals and Operating Procedures (DMP)

1 WS Directive 2.410 Pesticide Use

- Pesticide storage should be defined as incidental, small, or large. Incidental storage areas should not be defined as pesticide storage areas with regard to inspections, storage requirements, and other items mentioned in this directive.
- The directive should require that in significant events, the completed forms must also be sent to SHEWB to determine if further investigation is required. Significant events can be defined as those events requiring employees to miss three or more days of work, those accidents requiring long-term medical attention, or those events in which one or more people are killed. However, any event involving a none-WS employee is considered significant.
- WS should consider adopting the Worker Protection Standards (WPS) requiring all applicators carry at least one quart of water, coveralls (they could be one-use, disposable overalls), a towel, and soap in case the applicator splashes some pesticide on themselves, especially in their eyes.

2 WS Directive 2.415 M-44 Use and Restrictions

- It is critical that the M-44 mechanisms be easily and thoroughly cleaned to prevent accidental injector activation. The newer type of mechanisms (Type 4 produced 2002 to present – no bottom crimp; a retaining pin holds plunger and ejector spring in place—the pin permits field disassembly for cleaning, lubrication or replacement of inner parts) should be used.
- The district supervisors should examine all M-44 devices in the applicator's possession, identify the old-type devices for recycling, and ensure the policy states that only new mechanisms are to be used.
- Sodium cyanide reacts with acid, oxidizers and heat to form dangerous byproducts. Sodium cyanide reacts with both acid (even very weak acid) and water (moisture) to produce hazardous hydrogen cyanide gas. Sodium cyanide readily absorbs carbon dioxide and moisture from the air and deliquesces (to absorb atmospheric water vapor and become liquid). The practice of using vinegar and water to clean the devices should be studied to ensure proper protocols and safe-guards are implemented. The amount of debris left on the injector device may be minimal, even non-existent, but because of the potential severity of the process, it must be closely evaluated. If the evaluation indicates no significant risk, the protocol should be shared with all employees and made part of the Technical Bulletin.

Management and Administration (MA)

1 The accident investigation program should be strengthened to provide an accurate assessment of a significant event, so that adequate preventive methods can be implemented to prevent any recurrence. Those significant events must be first identified as significant, then reported to the appropriate authority in an

expeditious manner, and finally, investigated as close as possible to the time of occurrence. Significant events must be elevated up the management structure to ensure that an unbiased, professional evaluation can be conducted.

2 Pesticide storage should be clearly defined in the directives as incidental, small, or large. Incidental storage areas should not be defined as pesticide storage areas with regard to inspections, storage requirements, and other items mentioned in any directives.

Training Program (TP)

1 Produce several short, pesticide specific, i.e., M-44, LPC 1080, DRC-1339, safety training programs that can be placed on the WS Intranet and be copied to a DVD for distribution to remote locations not having high-speed internet service. These 15 minute productions should be used for various training sessions, such as during the monthly training requirement mentioned in the following training plan.

These video learning tools should be short (15-20 minutes each), should be pesticide-or process-specific, and their major emphasis should be on safety. The video should show actual applicators "out in the field," demonstrating the proper precautions (eye protection, glove, wind-direction, etc.) and identify when the application is at the most dangerous point, i.e., do not place face over M-44 device, stay upwind, have strong gloves; for DRC-1339 or zinc phosphide concentrate, when mixing small quantities, always mix in a closed container and let the dust and aerosols settle before opening; for aluminum phosphide, in rare instances the dust inside the air-tight container may spontaneously ignite if damp—do not cover—since confinement in this instance can cause an explosion. The aforementioned instances are only a few safety issues that should be demonstrated. The videos could include the following topics:

- safe use of M-44's,
- safe use of LPC collars,
- safe use and mixing of DRC-1339 concentrate,
- safe use and mixing of zinc phosphide,
- safe use of aluminum phosphide,
- need for participation in an OMMP,
- different types of gloves and eyewear that protect you from different pesticides,
- when respirators are to be used and their limitations,
- disposal of pesticides and spent containers, and
- storing and securing pesticides.

Equipment, Facilities and Maintenance (EFM)

1 It is critical that the M-44 mechanisms be easily and thoroughly cleaned to prevent accidental injector activation. The newer type of mechanisms Type 4 produced 2002 to present – no bottom crimp; a retaining pin holds plunger and ejector spring in place—the pin permits field disassembly for cleaning, lubrication or replacement of inner parts) should be used. The district

supervisors should examine all M-44 devices in the applicator's possession, identify the old-type devices for recycling, and ensure the policy states that only new mechanisms are to be used. In addition, the cleaning technique of using vinegar and water to clean the mechanisms mentioned in section 4, page 12 or this document should be further evaluated.

2 All applicators must carry at least one quart of water, coveralls (they could be one-use, disposable overalls), a towel, and soap in case the applicator splashes some pesticide on themselves, especially in their eyes.

Vehicles Safety Report

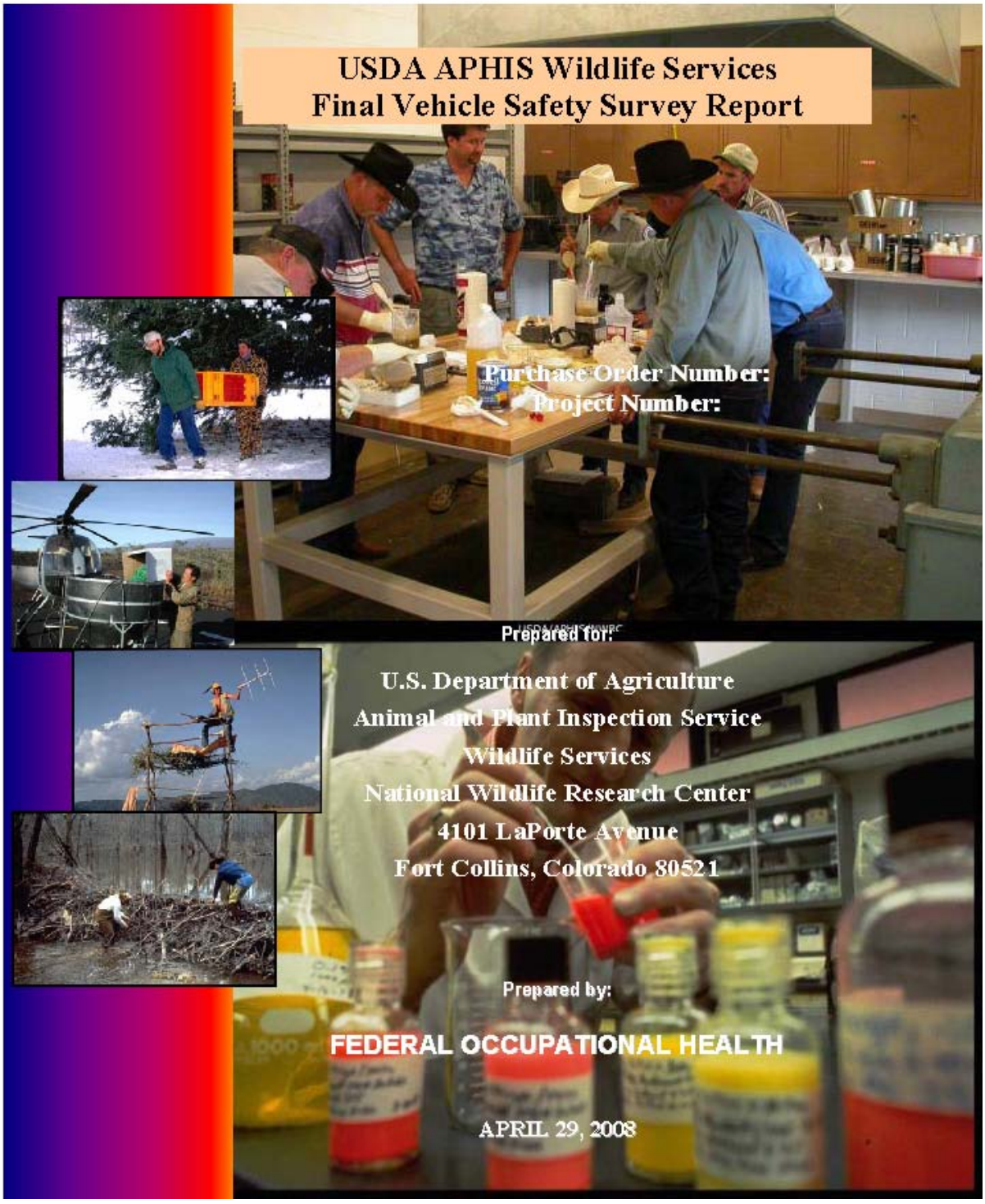

TABLE OF CONTENTS

1 INTRODUCTION

The U.S. Department of Agriculture's APHIS Wildlife Services (WS) requested Federal Occupational Health (FOH) to perform an in-depth review of their motor vehicle use program through an Interagency Agreement between FOH and APHIS. This review was part of an overall safety review that consisted of the following components:

- Aviation/Aerial Operations
- Explosives and Pyrotechnics
- Firearms
- Hazardous Material (Manufacturing and Laboratory)
- Immobilization and Euthanasia Drugs
- Motor Vehicles
- Pesticides
- Watercraft and Water Safety
- Wildlife Disease

The intent of this top-down safety review is to improve safety for WS employees. In the course of doing this, the review will highlight the exceptional programs WS already has in place. In an effort to obtain the most candid discussion of W programs, the review is not intended to be punitive.

1.1 PERSONNEL

The WS facilitator of the vehicle use survey was Stephen J. Greiner, OHST, a Safety and Health Specialist at the National Wildlife Research Center in Fort Collins, Colorado. The principal investigator for the survey was Kenneth E. Fischer, CSP, CIH, PE; Christopher Owens performed the background review of WS directives; and Samuel C. Colwell, PhD, conducted the statistical analysis and review. The last three are FOH consultants.

1.2 REPORT ORGANIZATION

The report is divided into the following sections:

- Section 1: Introduction
- Section 2: Scope of Work
- Section 3: Evaluation of Program
- Section 4: Recommendations
- Section 5: Limitations
- Attachment 1: Review of Manuals and Policy
- Attachment 2: Review of Accident Reports and Questionnaire Results
- Attachment 3: Sources

2 SCOPE OF WORK

The scope of FOH's work was to:

- Review the following applicable WS Directives, identify weaknesses, and make recommendations as appropriate:
  - 2.210, "Compliance with Federal, State, and Local Laws and Regulations"
  - 2.601, "Safety"
  - 2.605, "Wildlife Service Safety and Health Programs"
  - 4.150, "Vehicle Use"
  - MRP 5400, "Motor Vehicle Manual," dated June 20, 2007
  - APHIS 4790.4, "Directive on Defensive Driving Training Requirements"
  - All-Terrain Vehicles (ATVs) and Snowmobiles. In particular, evaluate completeness of WS Directive 4.150, "Vehicle Use," and 4.155, "All-Terrain Vehicles and Snowmobiles," from a safety perspective.
- Evaluate the APHIS Motor Vehicle Fleet Management Manual and the APHIS Safety and Health Manual for coverage of applicable safety standards. Identify weaknesses in training materials and standard operating procedures, and make recommendations.
- Review defensive driver training/certification programs (highway vehicles, ATVs, and snowmobiles). Identify weaknesses and make recommendations.
- Conduct a site review of one Western Region and one Eastern Region State Office program where vehicles and ATVs are used. Inspect training records and compliance with WS and APHIS requirements, employee adherence to policy and safety procedures, personal protective equipment (PPE), and other applicable safety parameters as determined by the reviewer and/or WS. Document observations of policy/regulation noncompliance. If possible, observe field application of ATVs and snowmobiles. Make recommendations for improvement as appropriate.
- Interview (via questionnaire and/or during field visits) WS State Directors and District Supervisors to determine if they have sufficient insight into their vehicle use program to be proactive and accountable for safe operations.
- Survey each WS State Office in order to collect data, such as total numbers of employees, numbers and types of vehicles, miles driven, reportable accidents in the past three years, and training records, to determine accident rates for comparison with vehicle safety records of other Federal agencies and the public sector. The survey should also identify planned training courses and other pertinent information to determine where and what to review during the site visits.
- Provide a written draft report, including recommendations for program improvement, to WS for comments.
- Provide a final draft.

3 EVALUATION OF PROGRAM

The following observations about the WS Vehicle Safety Program are based on a review of all pertinent documentation on the WS Vehicle Safety Program, interviews with key personnel, responses to a survey sent to State and District Offices, and onsite reviews.

There is no question that the WS Vehicle Safety Program is effective. The accident rate of WS vehicles compares favorably with comparable available statistics for government or private vehicle usage. This safety record has apparently been accomplished without the cumbersome detailed requirements for the operator to document, check, and justify every activity that could be related to safe vehicle operation. The procedures are published and it is assumed that WS vehicle operators will abide by the requirements, which they apparently have done to this point. However, the significant accident increase of the last three years, even though it is still below comparable GOV and private vehicle rates, underscores a need for a more structured component to the WS Vehicle Safety Program.

Based upon site visits, WS Wildlife Specialists, their supervisors, and upper level managers in WS are to be congratulated on their level of corporate safety culture, at least as it relates to the vehicle safety program. However, this vehicle safety survey was commissioned to identify improvements that can be made, not just to identify elements that deserve commendation, which could actually become detrimental to the program by lessening vigilance. Safety depends significantly on awareness at all times, and becoming complacent can be disastrous.

Four generally acknowledged requirements for creating a positive safety culture are leadership, employee involvement, measurement, and continuous improvement. In order to bring the WS vehicle safety program to the next level, we see a need for improvement in each of these areas.

With respect to leadership, managers and supervisors at all levels need to support and implement changes identified below in Section 4, "Recommendations" of this report. A common misconception is that it is the duty of the safety person to make changes. Although the safety person has many responsibilities relating to employee occupational safety, it is the responsibility of managers to implement changes and keep attention on the program. This can be costly because managers and supervisors are burdened with many responsibilities, and this requires diverting more attention to employee safety.

The communication between supervisor and Wildlife Specialists is regarded as a high priority. This contact can sometimes be infrequent. A manager admitted that he may not see a Specialist from one end of the year to the next. Too much reliance can be placed on employee integrity. While the vast majority of Wildlife Specialists are highly responsible, if a Specialist has a life crisis, he or she could begin to behave erratically and the supervisor might not find out until some damage is done.

Regarding employee involvement, supervisors should use the existing awards program and nominate more employees for vehicle safety awards.

With respect to measurement, a number of improvements can be made to obtain better data on the number and types of motor vehicle incidents actually encountered. The intent of measuring is not to enforce punitive measures, which can actually reduce reporting and affect morale in a negative way, but to identify trends and implement corrective measures.

With respect to continuous improvement, a requirement of this vehicle study, (e.g., establishing systems to monitor safety compliance) suggests that data collection will result in continuous improvement. However, unless the will exists to take action based upon this data and to commit the resources to do so, data can lie unused. A strong commitment to continuous review plus follow-up action can ensure that continual improvement will occur.

4 RECOMMENDATIONS

Many detailed recommendations could be made based upon the study and analysis of the detailed operation and procedures of the WS Vehicle Safety Program; however, the purpose of this review is to determine causes and make recommendations to address root problems, not discuss specific issues. To that end, the following recommendations are offered:

1. Investigate the use of newer technologies to enhance communications. Given the critical nature of communications in case of an accident and in the supervisor-employee relationship, cell phone boosters, "bag phones" (these are higher-power cell phones such as the Motorola M800), and Personal Locator Beacons (PLBs) should be investigated for those Wildlife Specialists who frequently drop out of normal cell phone range during daily activities. (PLBs are similar to Emergency Locator Transmitters (ELTs) for downed aircraft.)
2. During interviews it was learned that Regional safety persons served on a collateral duty basis. Given the number of personnel in the field within the Eastern and Western Regions who have direct, daily exposure to safety hazards, these persons should be assigned on a full-time basis.
3. Improve roadside safety by the use of a magnetic strobe light that can be placed on the roof of a vehicle, marker cones placed behind and at a distance from the vehicle to warn approaching traffic, and the use of high-visibility vests. Collapsible cones are now available that can be locked inside tool boxes or elsewhere in pickup trucks to minimize the possibility of theft. Such cones are also available with LED blinker lights to improve visibility, especially in dark or semi-dark conditions. These cones can take the place of warning triangles that more commonly warn of roadside breakdown conditions.
4. Establish a separate safety budget, independent from other operating budget(s). This will allow items to be identified and prioritized separately. It will also allow the scope and complexity of safety needs to be more visible. Such needs include not only equipment, but also training, communication, and travel needs.
5. Make information on solutions to common problems available to field personnel by newsletter or possibly a website. Connectivity is limited for many field personnel, and a simple FTP site or website section that does not take a long time to open will make the information more accessible.
6. Establish and implement a more systematic way to ensure compliance with policies and procedures, (e.g., WS Directives, Safety Manual).

5 LIMITATIONS

FOH has employed certain investigative and research procedures during the course of this survey. It should be understood that such procedures indicate actual conditions only at the locations investigated and for the data received. As is customary, FOH has made certain inferences based on the results of this assignment.

Data and information regarding current operations have been provided FOH in part by the client and other sources. As is customary, FOH has assumed these data and information to be complete and factually correct. The conclusions rendered from these data and information is subject to professional opinion and thus could result in differing interpretations. Additionally, the conclusions rendered from this work are based on qualitative and quantitative information gathered on or near the date of this report.

ATTACHMENT 1—REVIEW OF MANUALS AND POLICY

MARKETING AND REGULATORY PROGRAMS (MRP) MOTOR VEHICLE MANUAL

A review of the Marketing and Regulatory Programs (MRP) Motor Vehicle Manual indicates that the document is thorough and complete overall; however, a few areas could be enhanced. The following recommendations are presented for WS consideration:

- Definitions
  - Provide a definition for defensive driving and high risk driver. (See 3c. below)
- Chapter 3
  - 2a.1–In addition, have Human Resources obtain a copy of the person's state Motor Vehicle Record (MVR). This should occur at initial assignment to a position requiring driving and on a random basis afterwards. Also, ensure that drivers do not have a valid driver's license in more than one state.
  - 2b.5–Describe how operator driving ability, compliance with safety regulations, and defensive driving habits are evaluated. List and describe the additional training.
  - 3c.–Change "…must be completed within 90 calendar days of employment…" to "…within 14 calendar days…."

    Also, develop policies to identify high risk operators. The following language is suggested:

    HIGH-RISK DRIVERS

    A driver will be classified as a high-risk driver if the MVR check indicates, or if it is otherwise determined, that the driver has one or more of the following violations within the last three years:

    - a conviction for an alcohol and/or drug related driving offense;
    - refusal to submit to a blood-alcohol content test;
    - conviction for reckless driving;
    - any combination of three or more moving violations, at fault accidents, or preventable accidents;
    - suspension, revocation or administrative restriction;
    - leaving the scene of an accident as defined by State laws;
    - at fault in a fatal accident;
    - a felony conviction involving a vehicle; or
    - three or more Government vehicle physical damage claims.

    MANAGEMENT CONTROLS FOR A HIGH RISK DRIVER

    If an employee is identified as a high-risk driver, either Option One or Option Two below will be exercised:

    Option One: Probation

    - The high-risk driver will be placed on probation (ending two years from the date of the most recent violation).

- HR will conduct an MVR check every six months for the duration of the probationary period.
- The Safety Manager will be notified of any additional violations while the employee is on probation.
- Employee driving privileges will be immediately suspended if any single repeat violation or any additional violation occurs while on probation or if any terms of probation are violated.

Option Two: Suspension of Driving Privileges

The high-risk driver will not be authorized to drive a motor vehicle at any time on Government business. This action may result in the supervisor either transferring the employee to a non-driving position, if a position exists, or the employee may be subject to termination. The employee may reapply for company driving privileges after one year of suspension.

- Chapter 4
  - 6a.(5)(d)–Require mandatory drug testing for all accidents where negligence or misconduct of an employee is suspected.
- Exhibit 1
  - Require a demonstration of operator skills to the supervisor before being permitted to tow.
  - 1b–Add a comment about allowance for increased braking distances when carrying a load.
- Chapter 4
  - 2–Provide a vehicle orientation, or add it to the defensive driver training, to ensure all operators are able to perform safety checks.

WS DIRECTIVES

The review of WS Directives 4.150, "Vehicle Use"; 2.601, "Safety"; 2.605, "Wildlife Service Safety and Health Program"; and 4.155, "All-Terrain Vehicles and Snowmobiles," generated the following recommendations:

- ATVs (4.155)
  - 3(b)(vii) contains extensive requirements for required equipment in snowmobiles. Although ATVs do not break down as often as snowmobiles, include a few of these items as required equipment in ATVs, such as a First Aid Kit.
- Snowmobiles
  - Add a vehicle maintenance section.

ATTACHMENT 2—REVIEW OF ACCIDENT REPORTS AND QUESTIONNAIRE RESULTS

ACCIDENT REPORTS

WS Motor Vehicle Accident Reports for the past four years (4th Quarter 2003–3rd Quarter 2007) were obtained from the vehicle use survey and analyzed (see Table 1 for a summary of the results). The reports showed that despite a very low overall accident rate, a rapid increase in motor vehicle accidents occurred from 2005–2007 for no apparent reason. For the 63 total accidents in the four-year period, 10 occurred in the five quarters (4th Quarter 03–4th Quarter 04) inclusive for an average of two accidents per quarter. The remaining 53 accidents occurred in the 11 quarters (1st quarter 05–3rd Quarter 07) for an average of 4.9 accidents per quarter, a rate increase of over 100 percent. Exhibits 1–4 show these trends. In discussions with officials and during site visits no reason was discovered for this increase.

The data were analyzed to determine the reasons for this significant increase in accidents, including an examination of possible contributing factors, such as:

- weather conditions
- time of year
- time of day
- geographical location
- type of travel
- driver at-fault

Analysis of weather conditions revealed that insufficient data exist to draw any conclusions since 38 of the 63 accident reports did not include weather condition data.

Accident rates were consistently highest in the third quarters, followed by second and first quarters, and lowest in the fourth quarters. The months from April through September accounted for 64 percent of the accidents. Possible causes for the increase during the second and third quarters could include the nature of the WS work, which could be more intense during the spring-summer seasons, and an increase in general vehicle travel during those same months.

Analysis of the time of day of accidents revealed that accident occurrences were evenly distributed throughout the day, so no conclusions could be associated with time-of-day of the accidents.

Accidents were not evenly distributed throughout all WS districts. For the approximately 100 districts, 39 percent reported accidents with 8 percent of the districts accounting for 33 percent of the accidents (see Table 2). Safety programs in high accident areas should be examined to ensure that a "culture of safety" is being fostered.

Only one accident occurred during non-official travel, so non-official use of vehicles does not appear to be a factor.

WS employees were at fault for approximately 58 percent of the accidents (i.e., 37 of the 63 accidents with responsibility for 3 accidents either unclear or not given in the report). Possible causes include lack of sufficient training in defensive driving and/or unfamiliarity with vehicle or terrain.

Table 1. WS Accidents for the Period from 3rd Quarter 2003–3rd Quarter 2007

Date	State Office	Time	Weather Conditions	At Fault Driver	Serious Injury	Seatbelt Worn?	Official Travel?	Complete Report?
10/22/03	Roswell, NM	8:56 a.m.	Not Given	Driver 2	N	Unk	Y	Y
11/17/03	Mississippi	1:30 p.m.	Not Given	Driver 2	N	Y	Y	Y
11/17/03	Ft. Collins, CO	2:47 p.m.	Not Given	WS	N	Y	Y	Y
11/18/03	Sacramento, CA	8:00 a.m.	Not Given	WS	N	Y	Y	Y
01/08/04	Guam	1:25 p.m.	Not Given	WS	N	Y	Y	Y
01/29/04	Guam	9:40 a.m.	Not Given	Driver 2	Y (driver?)	Y	Y	Y
06/30/04	Amherst, MA	11:51a.m.	Not Given	Driver 2	Y (driver?)	Y	Y	Y
07/07/04	San Diego, CA	4:30 p.m.	Sunny/Dry	Driver 2	N	Y	Y	N (Sup. Sig.)
09/29/04	Mississippi	10:50 a.m.	Not Given	Unclear	N	Y	Y	Y (more detail)
10/20/04	Springfield, IL	12:37 p.m.	Sunny/Wet	Driver 2	N	Y	Y	Y
02/10/05	Concord, NH	9:00 a.m.	Snow/Slush	WS	N	Y	Y	N (Sup. Sig.)
04/29/05	El Cajon, CA	3:30 p.m.	Not Given	Driver 2	Y (Fed. Driver)	Y	Y	Y
05/03/05	Mississippi	4:00 p.m.	Sunny/Clear	WS	Y (Fed. Driver)	Y	Y	N (Sup. Sig.)
05/12/05	**Carolina, PR**	**7:45 a.m.**	**Sunny**	**WS**	**Y**	**Y**	**Y**	**Y**
05/16/05	Las Vegas, NV	4:00 p.m.	Not Given	WS	N	Y	Y	N (Sup. Sig.)
05/28/05	San Antonio, TX	7:45 p.m.	Sunny/Dry	Driver 2	N	Y	Y	Y
06/28/05	Harrisburg, PA	7:00 a.m.	Cloudy/Wet	WS	N	Y	Y	Y
07/22/05	Lincoln, NE	4:00 p.m.	Not Given	WS	N	Y	Y	Y
07/26/05	Las Cruces, NM	10:30 a.m.	Not Given	WS	N	Y	Y	Y
08/01/05	Fair Oaks, CA	2:00 p.m.	Sunny/Clear	WS	N	Y	Y	N (Sup. Sig.)
08/03/05	Mississippi	9:15 a.m.	Good	WS	N	N	Y	N (Sup. Sig.)
08/12/05	Augusta, ME	4:30 p.m.	Sunny/Dry	Driver 2	N	Y	Y	Y
08/17/05	Las Cruces, NM	11:00 a.m.	Sunny/Clear	Driver 2	N	Y	Y	Y
09/23/05	Guam	10:11 a.m.	Not Given	WS	N	Y	Y	N (Sup. Sig.)
09/29/05	Las Cruces, NM	5:30 p.m.	Not Given	WS	N	Y	N	Y
12/02/05	Poland, OH	9:15 a.m.	Snow/Ice	Driver 2	N	Y	Y	Y
12/13/05	Columbia, MO	2:00 p.m.	Cloudy/Dry	Driver 2	N	Y	Y	Y
01/06/06	Castleton, NY	6:25 a.m.	Not Given	Driver 2	N	Y	Y	N (Sup. Sig.)
01/30/06	**Carolina, PR**	**10:05 a.m.**	**Sunny/Clear**	**WS**	**N**	**Y**	**Y**	**N (Sup. Sig.)**
02/10/06	Greensboro, AL	10:00 a.m.	Not Given	Driver 2	N	Y	Y	Y

02/10/06	Moseley, VA	3:25 p.m.	Not Given	WS	N	Y	Y	Y
03/21/06	West Valley City, UT	9:30 a.m.	Not Given	WS	N	Y	Y	Y
04/21/06	Lakeland, FL	7:45 a.m.	Not Given	WS	N	Y	Y	N (Sup. Sig.)
05/10/06	Mississippi	4:30 p.m.	Good	Driver 2	Y (driver 2)	Y	Y	Y
05/15/06	Phoenix, AZ	4:24 a.m.	Sunny/Clear	Driver 2	N	Y	Y	Y
05/16/06	San Antonio, TX	3:00 p.m.	Sunny/Clear	WS	N	Y	Y	Y
05/19/06	Harrisburg, PA	3:20 p.m.	Good	Driver 2	N	Y	Y	Y
06/09/06	Lincoln, NE	11:30 a.m.	Not Given	Driver 2	N	N	Y	Y
07/03/06	West Valley City, UT	8:48 a.m.	Not Given	WS	N	Y	Y	Y
07/20/06	Cola, SC	4:11 p.m.	Not Given	Driver 2	N	Y	Y	Y
07/22/06	Logan, UT	7:00 p.m.	Not Given	WS	N	Y	Y	N (Sup. Sig.)
07/24/06	Guam	8:00 a.m.	Not Given	WS	N	Y	Y	Y
08/18/06	Guam	6:05 p.m.	Dusk/Clear	WS	N	Y	Y	Y
08/23/06	California	2:00 p.m.	Not Given	WS	N	Y	Y	Y
08/31/06	Knoxville, TN	12:50 p.m.	Not Given	Not given	N	Y	Y	Y
10/21/06	Alabama	11:50 a.m.	Not Given	WS	N	Y	Y	Y
11/15/06	Texas	12:41 p.m.	Not Given	WS	N	Y	Y	Y
01/04/07	Kahului, HI	10:55 a.m.	Sunny/Clear	Unclear	N	Y	Y	N (Sup. Sig.)
01/05/07	Guam	1:25 p.m.	Not Given	Driver 2	N	Y	Y	Y
01/29/07	Louisiana	3:18 p.m.	Sunny/Clear	WS	N	Y	Y	N (Sup. Sig.)
03/07/07	Raleigh, NC	1:10 p.m.	Not Given	WS	N	Y	Y	N (Sup. Sig.)
03/12/07	El Cajon, CA	7:30 a.m.	Clear	WS	N	Y	Y	N (Sup. Sig.)
03/22/07	Langley AFB, VA	8:00 a.m.	Not Given	WS	N	Y	Y	Y
04/05/07	Annapolis, MD	7:40 a.m.	Sunny/Clear	WS	N	Y	Y	Y
04/19/07	Sweetwater, TX	1:28 p.m.	Not Given	WS	N	Y	Y	Y
05/09/07	Oregon	1:10 p.m.	Clear	WS	N	Y	Y	Y
06/11/07	Columbia, SC	2:00 p.m.	Not Given	Driver 2	N	Y	Y	Y
06/25/07	Casper, WY	9:00 a.m.	Not Given	WS	N	Y	Y	Y
07/03/07	San Antonio, TX	2:40 p.m.	Not Given	WS	Y (driver 2)	Y	Y	Y
07/16/07	Guam	11:00 a.m.	Not Given	WS	N	Y	Y	Y
07/25/07	San Antonio, TX	12:50 p.m.	Sunny/Wet	WS	N	Y	Y	Y
08/04/07	Florida	11:00 a.m.	Not Given	Driver 2	N	Unk	Y	Y
08/17/07	Sacramento, CA	11:00 a.m.	Not Given	Driver 2	N	Y	Y	N (Sup. Sig.)

Red (**bold**) = Same Driver. 63 total accidents, 58.73% (37) fault of WS, 9.52% (6) injuries, 26.98% (17) insufficient reports.

Exhibit 1. WS Vehicle Accidents 4th Quarter 03–3rd Quarter 07

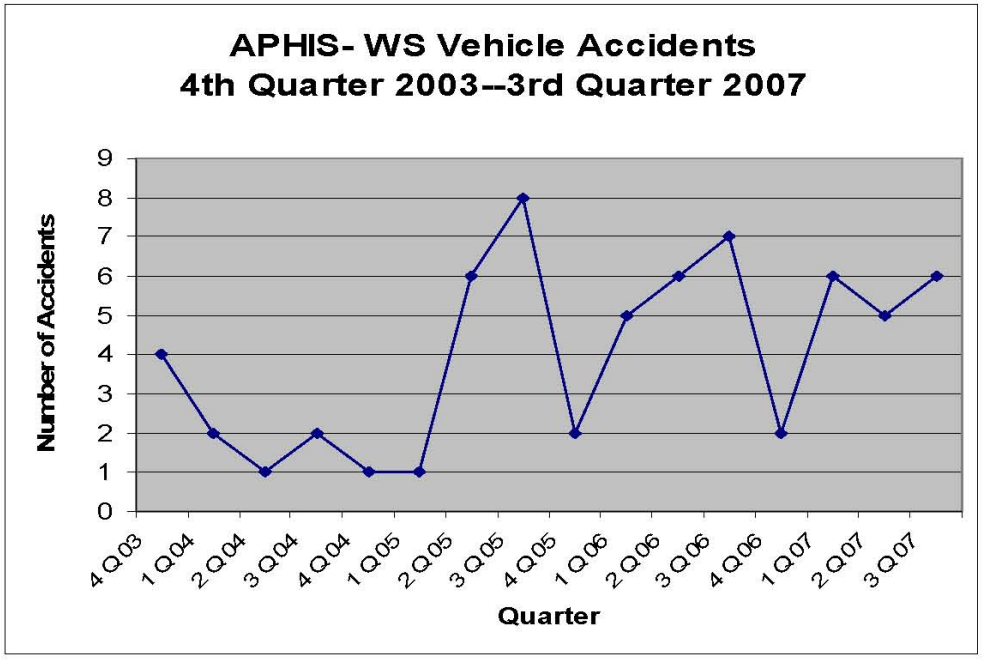

Exhibit 2. WS Cumulative Vehicle Accidents with Trend Line
4th Quarter 03–3rd Quarter 07

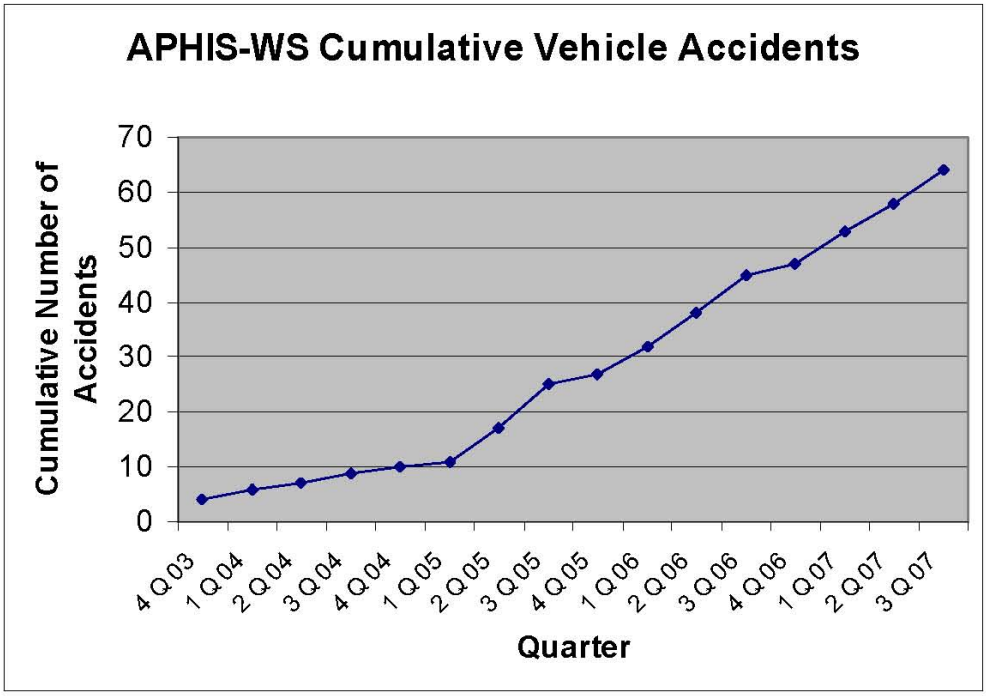

Exhibit 3. WS Vehicle Accident Trend Line (Slope = 1.4) for 4th Q 03–1st Q 05

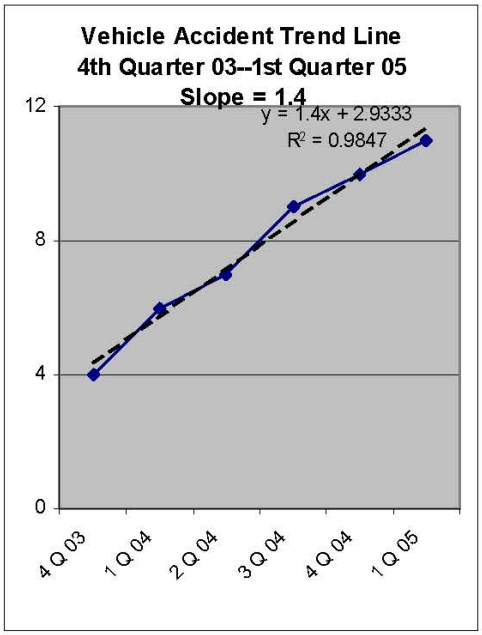

Exhibit 4. WS Vehicle Accident Trend Line (Slope = 5.1) for 1st Q 05–3rd Q 07

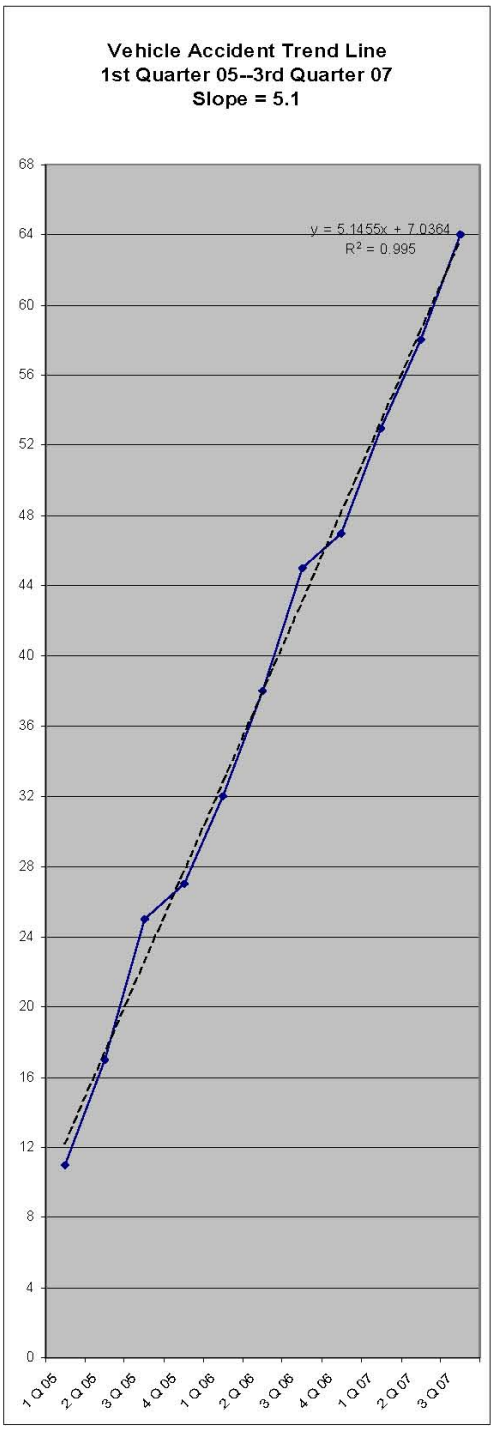

Table 2. WS Accident Information 3rd Quarter 03–3rd Quarter 07

WS District	Number of Accidents*
Guam	7
Mississippi (no districts given)	5
San Antonio, TX	3
Las Cruces, NM	3
Harrisburg, PA	3
West Valley, UT	3
Carolina, PR	3
El Cajon, CA	3
Lincoln, NE	3
* All other districts reported 1 or 0 accidents.	

QUESTIONNAIRE RESULTS

Questionnaires were sent out to all State and District Offices to determine the status of the vehicle safety program and to evaluate whether State Directors and District Supervisors have sufficient insight into their vehicle use programs to be proactive and accountable for safe operations. The State and District Questionnaires, developed in conjunction with the WS Safety and Health Specialist, are included as Appendix A and Appendix B below.

State Results

Thirty-three directors, representing 39 States and the District of Columbia, responded to the State Questionnaire (see Appendix A below) for a response rate of 76 percent. Five responses included multiple states: Maryland–Delaware–District of Columbia, Washington–Alaska, Tennessee–Kentucky, North and South Dakota, and Missouri–Iowa. In general the State Directors are highly aware of their vehicle use programs and were able to answer the questionnaire completely (see Table 3).

The responding States have a total of over 1100 employees operating over 1000 pickup trucks. System-wide, the trucks average 22,000 miles per year, which is typical for business-use vehicles in the U.S. Thirty-one SUVs, 7 sedans, and 4 vans are in operation throughout the country, averaging 12,000–15,000 miles per year, similar to the mileage for non business-use vehicles in the U.S. Additionally, WS employees operate specialized vehicles, including 405 ATVs, averaging between 1 and 2000 miles per year; 52 snowmobiles, 19 boats, and 7 motorcycles.

The predominant vehicle use involves pickup trucks and ATVs. The accident data in the State questionnaires did not specify vehicle types involved in the accidents, but what can be determined from the reports is that the total number of accidents for the three-year period from 2005–2007 is estimated at 63 for accidents involving pickup trucks backing into fixed objects or striking animals and 53 for pickup trucks involved with other vehicles.

Table 3. WS Vehicle Data from State Questionnaires

State	# Emp	Vehicle Data												Accident Data		
		Pickup	Avg Mile/ Yr	Sed	Avg Mile/ Yr	SUV	Avg Mile/ Yr	ATV	Avg Mile/ Yr	Snow	Avg Mile/ Yr	Other	Avg Mile/ Yr	2005	2006	2007
AL																
AK/WA	89	73	17,800	na		3	20,000	5	1,800	5	1,200	boat-1	3,000	?	?	5 Tot
AZ	22	23	12,000	2	12,000	2	6,000	9	2,000	na		Na			1	
AR																
CA	95	83	22,600	na		1	6,189	12	unk	7	unk			15	10	10
CO	41	25	22,640	na		1	15,000	25	6,000	8	500	Na		2	1	3
CT																
DE/DC/MD	27	24	20,000	na		na		4	unk					0	0	1
DC	See DE															
FL	6	3	15,000	na		2	12,000	na		na		na		0	1	0
GA	16	19	25,000	na		na		7	4,000	na		na		0	0	0
GU																
HI																
ID	30	23	18,900	na		2	6,750	29	unk	11	unk	Fat Cat Motorcyle-7	unk	0	0	1
IL	14	14	unk	na		na		3	unk	na		ORV-3	unk	0	2	1
IN	13	5	137,100	1	20,161	na		3	0	na		na				
IA/MO	19	17	23,530	na		1	5,000	6	150	na		na		1	0	0
KS	7	11	26,000	na		na		5	unk	na		na		1	1	0
KY/TN	37	47	12,360	na		na		13	650	na		van-1	3,501	2	2	1
LA	11+10pt	18	19,740	na		2	12,300	18	9,000	na		na		0	0	1
ME	17	13	3,850	na		2	12,500	6	2,000	1	0	boat-2	900 hr	1	1	0
MD	See DE															
MA																
MI																
MN	12+6pt	21	11,530	na		na		15	2,000	6	600	na				2

MS	30	30	2,500	1	5,000	1	10,000	25	1,000	na		2	unk	2	1	0
MO	See IA															
MT	29	25	23,680	na		1	20,000	24	unk	na		na		0	2	2
NE																
NV	25-Fed, 13-St	37	24,000	1	10,000	2	10,000	2	3,000	2	1,000	UTV-4	24,000	2	0	2
NH																
NJ	10	10	10,000	na		1	15,000	2	25	na		na		0	1	0
NM	43	35	20,000	na		na		25	unk	na		na		**3**		
NY																
NC	48	41	25,000	1	2,500	3	2,500	25	1,000	na		Kubota RTV-2, airboat-2	500, unk	1	3	3
ND/SD	18+11pt	25	30,000	na		1	10,000	12	1,000	1	1,000			0	0	1
OH	17	18	12,000	na		na		8	1,600	na		na		1	1	1
OK																
OR	51	41	20,000	na		1	3,000	22	unk	na		minivan-1	12,000			
PA																
PR																1 + **1**
RI																
SC	23	24	30,000	na		na		3	unk	na		boat-2	unk	0	**1**	2
SD	See ND															
TN	See KY															
TX	190	163-GOV, 36-ST	15,000	na		2	12,000	27-GOV, 24-ST	2,000	na		na		**1**	**2**	**3**, 10 Tot
UT																
VT																
VA	31	39	7,435	na		1	10,000	16	47	na		boat-9	unk	0	5	1
WA	See AK															
WV	13	13	25,000	na		1	5,000	14	1,100	2	250	na				1
WI	50	43	15,070	1	8,000	1	6,000	22	600	3	168	van-1, boat-3	10,000/ 200	1	1	0
WY	50+3pt	49	7,475	na		na		18	unk	14	unk	na		1	1	3

NOTE: For accident data, red (**bold**) #s indicate data from accident report file; black #s are from State questionnaires.

For the three-year period from 2005–2007, the WS accident rate per one million miles driven (VMT) is a notably low 1.77. The latest available statistics on fleet accident rates per vehicle type, including government-owned vehicles (GOVs), are from 1999–2001, compiled by the National Safety Council (NSC). These representative data are based only on the members participating in the National Fleet Safety Contest and show the following accident rates per one million VMT:

- Trucks (GOV): 8.27
- Trucks (all): 3.96
- U.S. Postal Service: 12.87
- Utilities: 5.16
- Passenger cars: 6.53

The annual report "Traffic Safety Facts 2005: A Compilation of Motorized Vehicle Crash Data," published by the National Highway Traffic Safety Administration (NHTSA), presents more complete data about traffic crashes resulting in property damage as well as injuries and fatalities but does not include a category specifically for GOVs. Property-damage-only crashes in 2005 showed the following involvement rate per one million VMT:

- Passenger cars: 2.58
- Light trucks: 2.57
- Large trucks: 1.59
- Motorcycles: 1.68

The data most comparable to WS crash statistics are the light truck NHTSA data. The WS accident rate of 1.77 crashes per one million VMT compares favorably with the 2.57 light truck rate compiled by NHTSA. In addition the WS crash statistics compare very favorably with NSC GOV truck rate of 8.27. One note of caution with this analysis is the assumption that the WS information, although not complete, is representative of the entire agency crash data.

The State questionnaires also showed that all WS drivers complete defensive driver training when they are hired with updates every three years. All are licensed for the types of vehicles they drive. It is less clear whether the operators have specialized training in the use of vehicles types under WS field working conditions (e.g., if a vehicle regularly pulls a trailer, are operators given specialized training in this use?) Likewise, it is not clear whether all operators follow the NIOSH recommendations for preventing worker injuries and deaths from motorized vehicle crashes.

District Results

A complete list of all WS Districts was not available, so the following calculations are based on an estimate of 49 Districts in the Eastern Region and 50 in the Western Region. Thirty Eastern Region and 36 Western Region Districts responded to the questionnaire for a participation total of 66 and a participation rate of 67.7 percent. The District Questionnaire addressed operations and maintenance of vehicles as well as office procedures (see Appendix B below). For ease of reference, the number(s) and text of the questions from the "Questionnaire–WS State Directors or District Supervisors" are printed in bold and precede the discussion analysis. The responses to the question(s) are summarized below:

1. Does your office verify that all vehicle operators, who operate GOVs on Government business, possess a valid driver's license for the class of vehicle they operate?

Summary: All offices verify that operators have valid driver's licenses for the vehicles they operate when they are hired. After that licenses are generally not checked. It is not determined whether operators are licensed in more than one State.

Comments: Check licenses every at least two years or when supervisors do their annual Trapline Inspections. Post the MRP Safety Manual "Requirements to Operate" a GOV in a prominent place frequented by employees. Provide a copy in each vehicle's GOV self-insurance information glove-box packet.

2. Do you have a way of verifying that the vehicles are being used only for official use?

Summary: Most offices rely primarily on trust and some random checks to verify that vehicles are being used only for official business. However, some offices employ and examine vehicle usage logs that require daily mileage entries to detect any irregular trends which could indicate misuse.

Comments: Establish procedures (e.g., vehicle logs) to verify that vehicles are used only for official use or have proper approval for personal use.

3. What measures are in place to ensure that operators are complying with license restrictions (e.g. corrective lenses)?

Summary: No procedures are in place to ensure that drivers are complying with license restrictions other than discussions during check rides with supervisors.

Comments: Establish procedures for supervisors to verify compliance with license restrictions annually (e.g., during annual Trapline inspections).

4. Are methods used to evaluate operators driving abilities, compliance with safety regulations, and/or defensive driving habits? If so please describe.

Summary: All offices rely on supervisors spending time in the field with employees to evaluate driving abilities and adherence to safety regulations. Supervisors also examine the vehicle visually for signs of misuse or abuse.

Comments: Require annual evaluations to evaluate operator driving abilities, defensive driving habits, compliance with safety regulations, and compliance with license restrictions.

5. Are state Motor Vehicle Records reviewed before permitting new employees to drive GOVs?

Summary: Virtually none of the offices reviews State motor vehicle records before permitting new employees to drive GOVs. However, some States perform background checks with the Criminal Justice Data Center.

Recommendations: If possible, check State motor vehicle records to identify high risk drivers.

6. If an operator were involved in more than one accident are there policies in place to require some action, such as restricting class of permitted vehicle use, additional training, or other measures?

Summary: Only one office reported more than one accident by the same driver. Local offices have established policies to address repeated accidents by the same driver, including retaking of defensive driving classes, restricting the class of permitted vehicle use, or similar actions, depending on the situation.

Comments: Establish formal policies to ensure that drivers involved in multiple accidents are identified and counseled. Provide remedial training as needed.

7. How does management investigate accidents?

Summary: For each accident, employees are required to fill out the forms found in the vehicle accident packet in each GOV. Management ensures that the forms are immediately completed and obtains copies of police reports if applicable. In some cases, supervisors go to the scene of the accident to document and take photos of the vehicle(s) and location(s). These data are used to establish fault.

Comments: Continue to ensure that required forms for GOV usage are in the glove box and that operators are trained and understand how and when to complete them.

8. How often are GOVs taken through safety checks and routine maintenance?
9. How often do GOVs undergo routine maintenance?

Summary: Safety checks and maintenance are generally completed as recommended by the manufacturer.

Comments: Continue to complete formal safety checks at every oil change and informal checks every day of use.

10. Is an updated list of training completion for operators that operate specialized vehicles?

Summary: The State (and some District) Office(s) maintains a file of employee defensive driver training.

Comments: Document and file all completed training, not just defensive driver training.

11. What, if any, training is provided specific to hauling trailers?

Summary: Training for hauling trailers is provided through videos or supervisor observation. No formal courses are used.

Recommendations: If available, require and provide formal training for hauling trailers.

12. What percentage of the time are employees hauling trailers and what items do they haul?

Summary: The percentage of time that employees are hauling trailers varies from 19 to 30 percent. The types of trailers include horse, camp, utility (e.g., for gear, traps), boat, and ATV. Trailers are also used to haul 400-gallon sprayers.

Comments: N/A

13. How is completion of defensive driver training for operators tracked?
14. How many drivers have received defensive driver training in the past 3 years and where are those records kept?

Summary: Training logs are maintained at the State Office, and supervisors receive prompts when refresher training is needed. All operators receive defensive driver training when hired with refresher updates every three years.

Comments: N/A

***14. What is the drug testing policy for operators involved in an accident?** (*Note: error of duplicate numbering in original questionnaire)
15. If medical questions arise pursuant to the operator's ability to drive, what actions does management take?

Summary: No regular drug testing or medical examinations are performed. One office conducts random drug testing. Otherwise, if conditions warrant, the supervisor may restrict GOV use until further tests are conducted.

Recommendations: Require drug testing as a condition of employment, on a random basis, and after any accident where driver error is involved.

16. Which of the following vehicles are used by your staff to carry out their respective job descriptions?
17. What training is provided for each vehicle?

Pickup Trucks
Sedans
SUVs
ATVs
Snowmobiles
Other [please indicate type(s)

Summary: All vehicle types are in use throughout the system, but formal training is focused mainly on defensive driving. Many offices request ATV or snowmobile training if it is available.

Recommendations: Provide ATV and snowmobile safety training in addition to the manufacturer's training.

18. How soon after a new employee is hired do they receive defensive driver training? How often are they required to receive refresher training?
19. Who provides the defensive driver training? (E.g., The National Safety Council (NSC); a WS employee using approved course materials; AAA; etc.)

Summary: All new employees receive defensive driver training almost immediately with refresher training every three years thereafter. The training is typically provided online through the National Safety Council.

Comments: N/A

20. Do you have operators that work at airports? If so what type of training do they receive to ensure safe vehicle operation on airport property?

Summary: All employees required to work at airports receive specialized training for security I.D. areas and airfields provided by the appropriate airport authority, which is typically the airport rescue and firefighting department.

Comments: Document, track, and file all formal training received.

21. Must new operators be observed driving any of the following vehicles before being allowed to operate vehicles unattended?

Pickup Trucks
Sedans
SUVs
ATVs
Snowmobiles
Other [please indicate type(s)

Summary: New operators are not often observed driving the vehicles before being allowed to operate the vehicle unattended. When observation is required, a supervisor or a more experienced employee generally performs the observation.

Comments: Provide trained safety observers to instruct and observe new operators driving vehicles before allowing them to drive unattended.

22. When operators are using specialized vehicles that require use of Personal Protective Equipment (i.e. helmets, goggles, etc.), what measures are taken to ensure the equipment is being used properly?

Summary: Policy dictates that all employees use the appropriate Personal Protective Equipment (PPE) when operating specialized vehicles, (e.g., ATVs, snowmobiles, boats). Districts use manufacturer training video, unannounced site visits, and internal reports to ensure proper PPE usage.

Comments: Provide all employees with necessary PPE. Provide, document, and file all training in the proper use and maintenance of PPE.

23. What measures are taken to ensure that vehicles are maintained in safe operating condition?

Pickup Trucks
Sedans
SUVs
ATVs
Snowmobiles
Other [please indicate type(s)

Summary: Vehicles receive routine maintenance as recommended by the manufacturer. Otherwise maintenance is performed as needed.

Comments: Ensure that all maintenance is documented, made available to all operators, and filed in the District Office.

24. Does any training provided ensure that the operators can confidently perform a daily vehicle safety check before using the vehicle?

Summary: Operators perform daily vehicle safety checks. No specialized training other than a general orientation is provided.

Recommendations: Provide training and a checklist for operators to perform daily vehicle safety checks.

25. When it is necessary for an operator to drive to a remote location alone, what safety measures are in place if an accident occurs?

Summary: Since vehicle operators typically work alone at remote locations, they are provided with cell phones as well as all WS required safety equipment and PPE. Depending on the situation they may also have VHS radios or GPS personal locators.

Recommendations: Make use of newer communication technologies (see Section 4, "Recommendations," #1 above).

26. How are employees encouraged to report unsafe vehicle working conditions to management? *25. What steps are taken to foster a culture of safety awareness while on duty? (*Note: Error of duplicate numbering in original questionnaire)

Summary: All districts foster a safety culture within each of their work units through various means, such as focusing on and encouraging safety during district meetings, praising positive safety statistics, and encouraging anonymous reports of unsafe operations.

Comments: See Section 3, "Evaluation of Program" above.

26. Is any type of literature (i.e. newsletters, posters, pamphlets) used as continuous reminders of the importance of safe vehicle operations?

Summary: All Districts use various ways to make employees more aware of safe practices, such as GOV stickers reminding employees to use seat belts, e-mails from Headquarters and safety officers, fact sheets, and safety alerts.

Comments: Ensure that materials are distributed to all employees and/or posted in a prominent place.

27. Do you have an incentive program that rewards safe operators? If so, what awards have been given in the past three years?

Summary: Generally, no safety incentive programs have been used. However, several safety award programs are available in the MRP Safety Manual.

Recommendations: Enhance the safety incentive program and publicize it well among employees.

Appendices

Appendix A–State Questionnaire

Appendix B–Questionnaire WS State Directors or District Supervisors

APPENDIX A

Questionnaire for WS State Program

_____
State Program

1. Who is the state program's Vehicle Accounting Officer?
   _____

2. How many employees does your state program employ?
   _____
   _____
   _____

3. How many employees are operators of GOVs and official use POVs?
   GOVs_____POVs_____
   _____

4. How many GOVs are used for Home to Work travel?
   _____
   _____
   _____
   _____

5. What types of vehicles are used by these employees?

Pickup Trucks	
Sedans	
SUVs	
ATVs	
Snowmobiles	
Other [please indicate type(s)]	

6. How many of each vehicle type do you have?

Pickup Trucks	
Sedans	
SUVs	
ATVs	
Snowmobiles	
Other [please indicate type(s)]	

7. What is the total mileage annually for each vehicle type?

Pickup Trucks	
Sedans	
SUVs	
ATVs	
Snowmobiles	
Other [please indicate type(s)]	

8. Please describe briefly any reportable accidents the State Program has had in the past three years. (Please list per calendar year.)

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

9. What upcoming training courses or events do you have planned? (Please list the type of training along with the location and date.)

_____
_____
_____
_____
_____
_____

_____ _____
Name of Person Completing Questionnaire Date

_____ _____
Email Address Phone

APPENDIX B

Questionnaire
WS State Directors or District Supervisors

_____
Office Name

1. Does your office verify that all vehicle operators, who operate GOVs on Government business, possess a valid driver's license for the class of vehicle they operate?

2. Do you have a way of verifying that the vehicles are being used only for official use?

3. What measures are in place to ensure that operators are complying with license restrictions (e.g. Corrective lenses)?

4. Are methods are used to evaluate operators driving abilities, compliance with safety regulations, and/or defensive driving habits? If so please describe.

5. Are state Motor Vehicle Records reviewed before permitting new employees to drive GOVs?

6. If an operator were involved in more than one accident are there policies in place to require some action, such as restricting class of permitted vehicle use, additional training, or other measures?

7. How does management investigate accidents?

8. How often are GOVs taken through safety checks and routine maintenance?

Pickup Trucks	
Sedans	
SUVs	
ATVs	
Snowmobiles	
Other [please indicate type(s)	

9. How often do GOVs undergo routine maintenance?

Pickup Trucks	
Sedans	
SUVs	
ATVs	
Snowmobiles	
Other [please indicate type(s)	

10. Is an updated list of training completion for operators that operate specialized vehicles?

11. What, if any, training is provided specific to hauling trailers?

12. What percentage of the time are employees hauling trailers and what items do they haul?

13. How is completion of defensive driver training completion for operators tracked?

14. How many drivers have received defensive driver training in the past 3 years and where are those records kept?

14. What is the drug testing policy for operators involved in an accident?

15. If medical questions arise pursuant to the operator's ability to drive, what actions does management take?

16. Which of the following vehicles are used by your staff to carry out their respective job descriptions? What training is provided for each vehicle?

Pickup Trucks	
Sedans	
SUVs	
ATVs	
Snowmobiles	
Other [please indicate type(s)	

17. What training is provided for each vehicle?

Pickup Trucks	
Sedans	
SUVs	
ATVs	
Snowmobiles	
Other [please indicate type(s)	

18. How soon after a new employee is hired do they receive defensive driver training? How often are they required to receive refresher training?

19. Who provides the defensive driver training? (E.g., The National Safety Council (NSC); a WS employee using approved course materials; AAA; etc.)

20. Do you have operators that work at airports? If so what type of training do they receive to ensure safe vehicle operation on airport property?

21. Must new operators be observed driving any of the following vehicles before being allowed to operate vehicles unattended?

Pickup Trucks	
Sedans	
SUVs	
ATVs	
Snowmobiles	
Other [please indicate type(s)	

22. When operators are using specialized vehicles that require use of Personal Protective Equipment (i.e. helmets, goggles, etc.), what measures are taken to ensure the equipment is being used properly?

23. What measures are taken to ensure that vehicles are maintained in safe operating condition?

Pickup Trucks	
Sedans	
SUVs	
ATVs	
Snowmobiles	
Other [please indicate type(s)	

24. Does any training provided ensure that the operators can confidently perform a daily vehicle safety check before using the vehicle?

25. When it is necessary for an operator to drive to a remote location alone, what safety measures are in place if an accident occurs?

26. How are employees encouraged to report unsafe vehicle working conditions to management?

25. What steps are taken to foster a culture of safety awareness while on duty?

26. Is any type of literature (i.e. newsletters, posters, pamphlets) used as continuous reminders of the importance of safe vehicle operations?

27. Do you have an incentive program that rewards safe operators? If so, what awards have been given in the past three years?

Please provide any other notes or comments that you think would help to foster safe vehicle operations:

Name of Person Completing Questionnaire _____ Date _____

Email Address _____ Phone _____

Thank you for participating in this survey.

ATTACHMENT 3—SOURCES

Levenson, Mark S. "All-Terrain Vehicle Injury and Exposure Studies." U.S. Consumer Product Safety Commission, Division of Hazard Analysis, 2003.

Moser, Phil and Costello, Jim. Session No. 543, "Confessions of a Business Driver: Understanding Driver Safety Risks." *Advanced Driver Training Services*. 2007.

National Highway Traffic Safety Administration. "Traffic Safety Facts 2005: A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System." 2005.

National Institute for Occupational Safety and Health. *Publication No. 98-142*, "Preventing Worker Injuries and Deaths from Traffic-Related Motor Vehicle Crashes." July 1998.

National Safety Council. "Fleet Accident Rates by Type of Vehicle, 1999–2001." Summarized from the *National Fleet Safety Contest*, 2001.

Listing of all Vehicle Reviewer Recommendations

Directives, Manuals, and Operating Procedures (DMP)

1 Marketing and Regulatory Programs (MRP) Motor Vehicle Manual

- APHIS should provide a definition for defensive driving and high risk driver.
- APHIS Human Resources should obtain a copy of the person's state Motor Vehicle Record (MVR). This should occur at initial assignment to a position requiring driving and on a random basis afterwards. Also, ensure that drivers do not have a valid driver's license in more than one state.
- The manual should describe how operator driving ability, compliance with safety regulations, and defensive driving habits are evaluated. List and describe the additional training.
- 3c.–Change "…must be completed within 90 calendar days of employment…" to "…within 14 calendar days…." Also, develop policies to identify high risk operators. The following language is suggested:

  HIGH-RISK DRIVERS

  A driver will be classified as a high-risk driver if the MVR check indicates, or if it is otherwise determined, that the driver has one or more of the following violations within the last three years:

  • a conviction for an alcohol and/or drug related driving offense;
  • refusal to submit to a blood-alcohol content test;
  • conviction for reckless driving;
  • any combination of three or more moving violations, at fault accidents, or preventable accidents;
  • suspension, revocation or administrative restriction;
  • leaving the scene of an accident as defined by State laws;
  • at fault in a fatal accident;
  • a felony conviction involving a vehicle; or
  • three or more Government vehicle physical damage claims.

  MANAGEMENT CONTROLS FOR A HIGH RISK DRIVER

  If an employee is identified as a high-risk driver, either Option One or Option Two below will be exercised:

  Option One: Probation

  • The high-risk driver will be placed on probation (ending two years from the date of the most recent violation).
  • HR will conduct an MVR check every six months for the duration of the probationary period.
  • The Safety Manager will be notified of any additional violations while the employee is on probation.
  • Employee driving privileges will be immediately suspended if any single repeat violation or any additional violation occurs while on probation or if any terms of probation are violated.

Option Two: Suspension of Driving Privileges
The high-risk driver will not be authorized to drive a motor vehicle at any time on Government business. This action may result in the supervisor either transferring the employee to a non-driving position, if a position exists, or the employee may be subject to termination. The employee may reapply for company driving privileges after one year of suspension.

- Mandatory drug testing should be required for all accidents where negligence or misconduct of an employee is suspected.
- Provide a vehicle orientation, or add it to the defensive driver training, to ensure all operators are able to perform safety checks. (same as TP-2)
- Prior to towing a trailer, APHIS supervisors should require a demonstration of operator skills. (same as TP-3)

2 WS Directive 4.155 All-Terrain Vehicles and Snowmobiles

- ATVs - 3(b)(vii) contains extensive requirements for required equipment in snowmobiles. Although ATVs do not break down as often as snowmobiles, include a few of these items as required equipment in ATVs, such as a First Aid Kit. (same as EMF-4)
- Snowmobiles - Add a vehicle maintenance section. (same as EMF-5)

Management and Administration (MA)

1 Establish a separate safety budget, independent from other operating budget(s). This will allow items to be identified and prioritized separately. It will also allow the scope and complexity of safety needs to be more visible. Such needs include not only equipment, but also training, communication, and travel needs.
2 Establish and implement a more systematic way to ensure compliance with policies and procedures, (e.g. WS Directives, Safety Manual).
3 Require drug testing as a condition of employment, on a random basis, and after any accident where driver error is involved
4 If possible, check State motor vehicle records to identify high risk drivers.

Training Program (TP)

1 Provide ATV and snowmobile safety training in addition to the manufacturer's training.
2 Provide training and a checklist for operators to perform daily vehicle safety checks.
3 If available, require and provide formal training for hauling trailers.

Additional Safety Staff (SS)

1 During interviews it was learned that Regional safety persons served on a collateral duty basis. Given the number of personnel in the field within the Eastern and Western Regions who have direct, daily exposure to safety hazards, these persons should be assigned on a full-time basis.

Equipment, Facilities and Maintenance (EFM)

1 Investigate the use of newer technologies to enhance communications. Given the critical nature of communications in case of an accident and in the supervisor-employee relationship, cell phone boosters, "bag phones" (these are higher-power cell phones such as the Motorola M800), and Personal Locator Beacons (PLBs) should be investigated for those Wildlife Specialists who frequently drop out of normal cell phone range during daily activities. (PLBs are similar to Emergency Locator Transmitters (ELTs) for downed aircraft.)

2 Improve roadside safety by the use of a magnetic strobe light that can be placed on the roof of a vehicle, marker cones placed behind and at a distance from the vehicle to warn approaching traffic, and the use of high-visibility vests. Collapsible cones are now available that can be locked inside tool boxes or elsewhere in pickup trucks to minimize the possibility of theft. Such cones are also available with LED blinker lights to improve visibility, especially in dark or semi-dark conditions. These cones can take the place of warning triangles that more commonly warn of roadside breakdown conditions.

3 Make use of newer communication technologies.

4 Like ATVs, snowmobiles can break down. Emergency equipment should be required on snowmobiles, such as a First Aid Kit. (same as DMP-2)

5 Snowmobiles - Add a vehicle maintenance section. (same as DMP-2)

Culture (C)

1 Make information on solutions to common problems, such as how others solved the referenced tire problem, available to field personnel by newsletter or possibly a website. Connectivity is limited for many field personnel, and a simple FTP site or website section that does not take a long time to open will make the information more accessible.

2 Enhance the safety incentive program and publicize it well among employees.

Watercraft Safety Report

MARYLAND NATURAL RESOURCES POLICE

BOATING OPERATIONAL SAFETY REVIEW

Of the United States Department of Agriculture Wildlife Services

PURPOSE: To conduct an on site review of Wildlife Service boating operations with emphasis on operational hazards, safety policies and procedures, initial and recurring training, accountability of crews, safety equipment, boat handling, operator certification, and compliance with Federal, State, and industry standards. In addition, the site of the March 2006 fatality in Clear Lake Washington would be reviewed.

EXECUTIVE SUMMARY:

USDA Wildlife Service (WS) mission is to provide Federal leadership in managing problems caused by wildlife. The Wildlife Service utilizes a variety of different vehicles and control tools to accomplish this mission. WS employees also use many different vessel types, classification, and size to complete their missions on or near the water. These vessels include: one and two person kayaks, canoes, standard outboard motor boats, Beaver Tail long shank air cooled outboards, high power jet boats, and Jon boats.

Operational environments include: the turbulent waters adjacent to huge hydro-electric dams, some of America's largest rivers and swamps in the Southeast, structures like bridges and ferry docks on the West Coast, the busy intra-coastal waterway, and floating marshes on the Eastern Shore. WS employees often work at night, or at sunset. They may work alone, or sometimes from their own homes, resulting in supervisory accountability challenges. Many missions require lengthy trips to remote areas, work on shore in difficult terrain, and a return by boat late in the day or the next morning. Operators and crew often wear heavy warm clothing and hip waders. Vessels are often loaded with equipment including Beaver traps, poles, chain, pyrotechnics, and shotguns.

Maryland Natural Resources Police (NRP) reviewers visited several WS sites throughout the country. Interviews were conducted with supervisors and staff. The

reviewers accompanied boat operators on site as WS personnel performed typical duties; examined safety equipment and vessels; and reviewed written policies. Without exception, the reviewers were treated cordially, and in a highly professional and open manner by all WS employees. The reviewers were impressed by the dedication to the WS mission and the concerns for safety demonstrated by all staff including supervisors. The reviewers wish to acknowledge the exceptional safety record overall of Wildlife Services since its inception.

At most sites, reviewers found little or no written policies concerning basic safety requirements including use of Personal Flotation Devices (PFDs). One notable exception was a State that had a policy stating: "that lifejackets must be worn while operating all types of watercraft." There were few written policies regarding certification of boat operators, inspection of safety equipment, checklists, or emergency procedures. No state or district had written polices regarding specific and documented initial and/or recurring training on the various types of vessels, or on float plans and accountability. There were no safety oriented posters, literature, or warnings posted at or near work sites. With the exception of WS vessels operating on Corps of Engineers activities, there were no formal float plans accounting for people and vessels while on the water.

The basic WS safety requirement is that all vessels and operators follow those requirements established by the laws and regulations of the state in which they operate see appendix for WS Safety Directive 2.601. This is not sufficient in that the work environment of WS employees is far more hazardous than recreational boaters for whom state laws were designed to provide minimum safety requirements.

The NRP reviewers recommend that:

1. ***PFD use (actual wearing while underway) is mandatory at all locations.***

2. ***Each site obtain the styles and types of PFD's most likely to be worn including float coats, Auto Inflatable PFD's for hot weather, and comfortable vest style Type 3 PFD's***

3. ***Safety officers are appointed for each district. These individuals, in cooperation with supervisors and managers, will develop, in final form, a written policy. This policy would include initial and recurring training, certification of boat operators, emergency operations, search and rescue, safety equipment inspections, float plans, accountability, and proper loading of equipment on the vessel.***

4. ***Suggestion for locations where WS staff work near/under piers with large ship or ferry traffic: Memorandum of Agreements should be signed requiring that a WS supervisor is contacted NLT 1 hour prior to the large ship or ferry boat's scheduled morning run by ship or port operations if there is no record of WS crew calling clear of the area.***

5. ***Purchase handheld GPS chart plotters (such as the Garmin Map 76 monochrome unit). Training, on the unit should be conducted prior to issue along with periodic refreshers each year.***

6. ***WS should maintain strict adherence to vessel placards in regards to weight and number of passengers on board. Safety Officers should develop easy to read examples of typical loading which approach weight limits. Example: "Two male adults 10 beaver traps, two fuel tanks, a crate of chain, etc = 550 pounds……" These examples should be provided to all staff and could be also conspicuously mounted in poster style where the boats are stored.***

7. ***WS Safety Officers should obtain (often free from boater safety organizations) and post conspicuously signs and safety posters. This sends a message that safety is important!***

REVIEWERS:

Cpl. Richard Banks Kaufmann is a Senior Boating Instructor at the NRP Training Academy and holds a current 50 ton USCG Masters License. Ms. Ann Rogers is Boating Safety Education Coordinator for Maryland's Natural Resources Police. Ms Rogers has been involved with the Maryland mandatory boater education law since 1988. These two reviewers were accompanied by Mr. Kevin Sullivan, State Director for Maryland, Delaware and DC to all the sites.

SITE HAZARD SUMMARY:

SITE 1: NUTRIA TRAPPING. Operators use vessels as transport for themselves and gear (including nutria traps and poles) to nutria trapping sites. They often wear waders while walking along in the Eastern Shore marshes to the trapping sites. The marshes can be treacherous due to soft spots. Operators also set traps from the vessels, or by wading close to the shore. A prime hazard is stepping in a hidden soft spot in shallow water -- locals call the oozy muck "black molasses." The shallow water is also littered with hidden obstacles including tree roots and stumps. An additional hazard unique to the equipment is the short and long shaft Beaver Tail air cooled outboard engines. These heavy (200 pounds) 27 HP motors have no reverse due to the float pods. With only a throttle, the operator must lift up the lower unit to stop.

Another unique challenge is that many boat operators work alone, and some directly from home, thus supervisors may not have daily accountability of staff.

KOHLER AIR COOLED BEAVERTAIL MUD MOTOR.
NOTE MUD!

SITE 2: CORMORANT HARASSMENT. Boat operators and crew work in remote areas harassing cormorants at their roosting areas, usually at sunset. They use shotguns and pyrotechnics. Poisonous snakes along the shore and swimming in the rivers pose the greatest hazard, not to mention a large population of alligators. WS boat crews also utilize small craft in their other major mission of beaver trapping. Cpl Kaufmann also noticed that the brush and branches along the shore line were often razor sharp and were at eye level for a small boat operator.

CORMORANT HARASSMENT ON YAZOO RIVER.

SITE 3: NESTING BIRD PROTECTION. WS wildlife specialists in the South West use small craft primarily to reach the sandy rookery islands managed by the Port Authority, just north of the National Sea Shore. WS personnel control predators such as wild hogs, coyotes, and raccoons that devastate roosting birds such as pelicans, rails, egrets, and skimmers. They use a variety of methods to reduce predation, including firearms and traps. Hazards on the island include: rattlesnakes, wild hogs, and rough terrain. Conditions that may affect crews heading to the island include: unpredictable

weather and huge ships traversing the shipping and inter-coastal channels. Reviewers noted that the only PFD's issued were the bulky and uncomfortable Type I and II style.

Reviewers noted poor cell phone coverage in several areas covered by WS, thus VHF radios are vital to personnel safety.

SITE 4: NUTRIA AND BEAVER TRAPPING; WOODEN DOCK AND PIER BIRD CONTROL. WS boat operations include: nutria and beaver trapping, goose "round ups" in summer, and night operations to reduce the large number of pigeons and starlings under huge shipping piers and docks. The bird droppings are devastating to the wooden ferry piers. WS uses small boats at night when the ferries are not operating to conduct nuisance wildlife removal. One crew person is stationed on the dock for safety. Wind conditions must be less than 10 knots. Boats check in and out of station with ferry operations using a handheld radio which can communicate with USCG and ferry operations. When firearms are to be used, local police are also notified.

The reviewers noted the excellent safety equipment not only carried, but used such as Mustang inflatable PFDs and dry suits in winter. Major hazards are ship traffic, and sharp obstructions under the piers. There is the potential for a ferry undergoing maintenance to engage its engine in gear. There is also a significant tide in terms of both fetch and current.

WS CREWS WORK AT NIGHT UNDER THESE DOCKS

WS employees involved in the geese, nutria and beaver projects use Jon boats, canoes, 8' and 10' Aqua Pods, row boats, 8 and 10 foot craft with electric trolling motors, and a 16' outboard vessel. Several of the staff work out of their homes and often work alone -- an accountability challenge. However, all have cell phones and truck mounted radios.

The reviewer boarded the actual Aqua Pod that was the scene of the drowning on March 2, 2006. Cpl Kaufmann informally tested the crafts' stability. With no water inside the hull, it is surprisingly stable. However, two adults, gear and a dog would normally exceed the weight limit on the loading placard (shown below).

All staff demonstrated a keen sense of safety and demonstrated pride in their safety equipment. The biggest hazard is the notoriously rapid change in weather conditions.

REVIEWER ABOARD AQUA POD AT CLEAR LAKE

SITE 5: SALMON PROTECTION. WS crews also use one 22' outboard, a 26' twin outboard, and a 22' jet drive to haze and harass as well as reduce bird predation that has previously devastated the salmon population at hydro-electric dams on large rivers on the west coast. Terns and gulls previously consumed approximately10% of the young Salmon fingerlings at each dam as they traversed the fish ladders, the overflow chute, and the turbine channel swimming down stream.

WS crews use firearms, pyrotechnics, and an "avian exclusion wire" grid which forms a shield of stainless steel wires running from the top of the dams to the water to protect the fingerling salmon. WS crews also catch thousands of Pike Minnow (large members of the minnow family with ferocious appetites) that gorge on the juvenile salmon.

HYDRO ELECTRIC DAM AND SALMON PROJECT.
NOTE VERY UNUSUAL CALM WATER THIS DAY.

PFD use is mandatory, as is constant communication by radio with the dam operations unit. Float plans are mandatory. Hazards include: fierce currents near the dam, obstacles in the water, extreme depth fluctuations (depth can vary from 3' to 30'), and high winds. During periods of high turbulence and current, a man overboard or losing an engine can mean a fatality. During peak operations (March – October), staff increase from 8 to a total of 42. The increase includes 4 boat captains, 14 fishermen, and boat crew staff.

A full week of training, including 3 days on the rugged WS aluminum jet boat, has been completed and a one week refresher is planned. The instructor is an experienced jet boat captain and professional instructor. CPR is given every other year to staff. Reviewers were extremely impressed with the safety emphasis, and boating skills of the WS jet boat captain who took Cpl Kaufmann out on a major river. The boat captain demonstrated operations within a few feet of the hydro electric dams.

ACCOUNTABILITY ISSUES

There are two major sub issues under Accountability:

1. Who is specifically tasked with an effective safety program, and

2. How does a specific district account for the location and safe return of all WS staff.

WHO IS TASKED WITH DETAILS OF A SAFETY PROGRAM?

After 30 years as a military officer, and several more managing programs at the Federal and State level, this reviewer is absolutely convinced that even a small district should have one staff OTHER THAN THE SUPERVISOR appointed "Safety Officer" as

a major additional duty. Without exception, all supervisors we interviewed where totally committed to their staff in terms of both safety and welfare. They also have a myriad of other duties.

The responsibility of the supervisor should be to establish a district and state "culture" of safe operation, and to provide the Safety Officer with the tools, funding, time and support needed to perform the following:

1. Write safety directives,
2. Purchase or recommend the purchase of the most effective safety equipment,
3. Train on its use,
4. Ensure all WS staff receive new employee and recurring training on all boats,
5. Obtain and post safety posters and materials,
6. Conduct certified NASBLA* approved classroom training,
7. Ensure appropriate on- water training (meeting NASBLA* standards)
8. Write or obtain safety oriented checklists,
9. Provide training and assistance to WS staff regarding loading limitations,
10. Write a simple and practical "Search and Rescue" plan, and
11. Look for job site hazards needing a specific action or items to address.

*NASBLA is the National Association of Sate Boating Law Administrators.

The NRP reviewers recommend the following:

1. ***Safety officers are appointed for each district. These individuals, in cooperation with supervisors and managers, will develop, in final form, a written policy. This policy would include initial and recurring training, certification of boat operators, emergency operations, search and rescue, safety equipment inspections, float plans, accountability, and proper loading of equipment on the vessel.***

2. ***WS should maintain strict adherence to vessel placards in regards to weight and number of passengers on board. Safety Officers should develop easy to read examples of typical loading which approach weight limits. Example: "Two male adults 10 beaver traps, two fuel tanks, a crate of chain, etc = 550 pounds……" These examples should be provided to all staff and could be also conspicuously mounted in poster style where the boats are store.***

ACCOUNTING FOR EVERY CREW'S SAFE RETURN

Reviewers asked the same question at each site:

"How do you account for boat crews in terms of general location and actual return to the launch ramp?"

The majority of responses were that the supervisors knew the general location of the crews, and that in most cases if a crew did not return to the ramp, a spouse would call. All crews had cell phones, but coverage in some locations was poor. Some projects, such as working near hydro-electric dams, required positive contact from an operations center with time in and time out transmissions.

There is a similar requirement for under dock projects utilizing the ferry company operations center. However, it was not clear what would happen if a crew did not call at the end of their task. The reviewers did not have the opportunity to discuss this with ferry operations, but the assumption is the day crew would "assume" the crew was clear and the early morning ferry boats would commence operation. There is also some concern that night maintenance workers might need to start a ferry engine and briefly engage the propeller in gear. The turbulence under the dock might be catastrophic to the WS crews.

The NRP reviewers recommend the following:

1. ***A memorandum of agreement be signed requiring that a WS supervisor is contacted NLT 1 hour prior to large ship or ferry boat scheduled morning run by ship or port operations if there is no record of the WS crew calling clear.***

2. ***District Safety Officers determine which system of notification would ensure crews are notified if potentially dangerous night maintenance is planned.***

3. ***The District Safety Officer should come up with a plan tailored to the unique situation of the District to improve the likelihood that a supervisor is notified of a lost, disabled, ill or injured WS employee and is able to initiate a search.***

Some sites (above) did have a "sign out/sign back in" type of chart but they were seldom used. One site did have a policy of everyone returning to the launch ramp or office at the same time for accountability. This is not always possible.

NAVIGATION AND COMMUNICATION ISSUES

Reviewers noted that some crews used outdated GPS units. Others did not use GPS or felt they knew their areas sufficiently. We feel that having a waterproof, reliable and easy to use GPS is a vital piece of safety equipment.

The NRP reviewers recommend the following:

1. ***Purchase handheld GPS chart plotters (such as the Garmin Map 76 monochrome unit). Training, on the unit, should be conducted prior to issue along with periodic refreshers each year.***

The units cost under $200, float, and can operate on two AA batteries all day. NRP uses these units. Additional software, for named streets and outlines of water bodies, costs approximately $125.

The GPS is a vital lifesaving as well as on the job tool. The GPS operator simply looks at a screen and reads his/her exact location in latitude and longitude. The operator can move the curser to a specific road, landmark, or helicopter landing zone (LZ) and easily read the bearing and distance they are from that landmark. The supervisor, or crew person, could transmit the GPS latitude and longitude of the nearby LZ to a rescue helicopter as well as the bearing and distance to the WS crew requiring rescue or medical attention.

For crews involved in recording trapping or other sites, waypoints can easily be downloaded to a laptop computer. Once "SAVED", any waypoint may be navigated to by a "GO TO" command and by simply following a dotted line on the screen. Saving a waypoint, whether it is a trapping site or an emergency LZ, is performed by simply holding down the "ENTER" button, typing in a name for the waypoint ("LZ Blue"), and

clicking "OK." "LZ Blue" can be seen on the screen if the operator is near it, or found by looking in the GPS menu of saved waypoints. By pressing the "NAV" button, and selecting "GO TO" LZ Blue, the crew can find the LZ in the middle of the night in heavy fog!

GARMIN GPS MAP 76
(Black and White is recommended)

PERSONAL FLOATATION DEVICE (PFD) ISSUES

Of all the recommendations noted in this report, we feel that the issue of mandatory wear of appropriate PFDs is most important. The reviewers, and the majority of staff we interviewed, felt that all boat crews must at all times wear a Personal Floatation Device while underway. This is especially vital if the crew member is burdened with waders or heavy clothing. Every conservation and law enforcement agency in the U.S., as well as U.S. Navy and USCG require PFDs be worn while aboard a vessel. Supervisors should also be aware that during launch ramp operations, and boarding from a dock, are where many "overboard" situations occur. PFDs should be donned prior to boarding and removed only after the wearer is safely on the dock.

The NRP reviewers recommend the following:

1. ***PFD use (actual wearing while underway) is mandatory at all locations.***

2. ***Purchase of more practical Type III vests and auto inflatable PFDs which are far more likely to be worn.***

MANY BOATS WERE WELL EQUIPPED AND IMACULATE BUT WS SHOULD PURCHASE MORE PRACTICAL AND COMFORTABLE PFD'S THAN THOSE PICTURED ABOVE.

MORE COMFORTABLE ALTERNATIVES

AUTO-INFLATE

TYPE III FLOATATION AIDS

TYPE III "FLOAT COAT" (LONG)

CAMOFLAGE TYPE III (BOMBER)

The link below is to Maryland's Natural Resources Police on line course dealing with Maryland's recreational boating personal floatation device (PFD) legal requirements. It explains the various types of PFDs including the Type III models above. It also reminds readers that only Type I and II PFDs provide head support for an unconscious person in

the water. However, Type III "Floatation Aids" are more comfortable and more likely to be worn. Type III "Float Coats" and full immersion suits are excellent for cold weather while the Type III Auto-inflatable shown top left is comfortable in hot weather.

http://www.boat-ed.com/md/course/p4-7_pfds.htm

CONCLUSION

We again wish to thank all WS staff involved in this review for their assistance, cooperation, and high degree of professionalism. The WS record over the years in regard to both mission dedication and safety has been excellent. The one major gap in safety policy has been to defer wearing of a PFD while underway to individual State law. This leads to inconsistent policy Nationwide. The small size of most districts and the general working conditions of WS (working in remote areas, often alone, using small craft) are such that we recommend National policy regarding PFD use, training, communications, and safety officer responsibility. We recognize that many conditions are unique to the individual districts and states. Therefore we recommend that National WS policy allows adequate flexibility for individual supervisors and managers to tailor many policy issues such as staff accountability and the specific safety equipment purchased to their individual needs.

ATTACHMENT: SAFETY DIRECTIVE

United States Department of Agriculture
Animal and Plant Health Inspection Service

WS Directive

2.601 10/07/05

SAFETY

1. PURPOSE

To establish general Wildlife Services (WS) safety guidelines and responsibilities.

2. REPLACEMENT HIGHLIGHTS

This directive revises WS Directive 2.601 dated 4/15/98.

3. POLICY

WS supervisors will promote a safe working attitude among employees. Supervisors will identify hazards, including wildlife-borne diseases, in advance of work assignments. Supervisors will also provide employees with adequate information, training, and personal protective equipment to optimize employee safety. WS employees will adhere to safety requirements and use appropriate personal protective equipment provided for assigned work. Employees are required to immediately report unsafe working conditions to their supervisor and work cooperatively to minimize hazardous working conditions.

WS personnel may be required to participate in the APHIS Occupational Medical Monitoring Program (OMMP) as a result of their assigned position and/or occupational exposures. OMMP is designed to protect employees who may be exposed to hazardous chemicals, biologicals, radioactive materials, and noise hazards. Access to the OMMP is accomplished by completing APHIS Form 29, OMMP Occupational Exposures, for indicating potential or actual exposure to occupational hazards. Form 29 must be signed by the employee and verified and signed by the employee's supervisor. The completed form is then submitted to Federal Occupational Health (FOH) who administers the OMMP for APHIS. Employees may decline to participate, in writing, in the OMMP; however, refusal may be justification for reassignment or other action. Necessary inoculations may be made a condition of employment. All accidents will be reported by WS employees to their supervisor in a timely manner. Accidents involving aircraft or a human fatality will be reported immediately to the appropriate Director.

WS personnel are advised to alert their physician that they may be exposed to wildlife-borne diseases. Serious diseases including rabies, hantavirus, plague, Lyme disease, psittacosis, Chlamydia psittaci, or histoplasmosis may be misdiagnosed unless the physician is aware of the possibility for exposure.

For additional information contact:

a. The National Wildlife Health Center, 6006 Schroeder Rd., Madison, WI 53711, telephone number 608/270-2400;
b. The National Veterinary Services Laboratories, 1800 Dayton Ave., P.O. Box 844, Ames, IA 50010, telephone number 515/663-7200;
c. The Centers for Disease Control and Prevention, 1600 Clifton Rd., Atlanta, GA 30333, telephone number 404/639-3311.

The APHIS Safety and Health Manual provides additional safety and health regulations and procedures to assist managers and supervisors in accomplishing their program responsibilities.

4. REFERENCES

APHIS Form 29, OMMP Occupational Exposures (http://www.aphis.usda.gov/library/forms/pdf/aphis29.pdf).
APHIS Safety and Health Manual - APHIS 4790 (http://www.aphis.usda.gov/library/manuals/).

William H. Clay

Deputy Administrator

Listing of all Watercraft Reviewer Recommendations

Directives, Manuals and Operating Procedures (DMP)

1 WSSR Comment: Not explicitly stated in the review but reviewer indicated WS would benefit from having a watercraft/water safety directive.

Management and Administration (MA)

1 Suggestion for locations where WS staff work near/under piers with large ship or ferry traffic: Memorandum of Agreements should be signed requiring that a WS supervisor is contacted NLT 1 hour prior to the large ship or ferry boat's scheduled morning run by ship or port operations if there is no record of WS crew calling clear of the area.

Training Program (TP)

1 WSSR Comment: Not stated as an explicit recommendation, but reviewer suggested that WS adopt State recreational boating certification standards at a minimum. Suggested that the type of work WS conducts warrants a higher level of training.

Additional Safety Staff (SS)

1 Safety officers are appointed for each district. These individuals, in cooperation with supervisors and managers, will develop, in final form, a written policy. This policy would include initial and recurring training, certification of boat operators, emergency operations, search and rescue, safety equipment inspections, float plans, accountability, and proper loading of equipment on the vessel.

Equipment, Facilities and Maintenance (EFM)

1 PFD use (actual wearing while underway) is mandatory at all locations.
2 Each site obtain the styles and types of PFD's most likely to be worn including float coats, Auto Inflatable PFD's for hot weather, and comfortable vest style Type 3 PFD's.
3 WS should maintain strict adherence to vessel placards in regards to weight and number of passengers on board. Safety Officers should develop easy to read examples of typical loading which approach weight limits. Example: "Two male adults 10 beaver traps, two fuel tanks, a crate of chain, etc = 550 pounds……" These examples should be provided to all staff and could be also conspicuously mounted in poster style where the boats are stored.
4 Purchase handheld GPS chart plotters (such as the Garmin Map 76 monochrome unit). Training, on the unit should be conducted prior to issue along with periodic refreshers each year.

Culture (C)

1 WS Safety Officers should obtain (often free from boater safety organizations) and post conspicuously signs and safety posters.

Zoonotic Diseases Safety Report

Wildlife Services' Safety Review
Zoonotic Diseases

Final Summary Report

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Executive Summary

Review Process

To assess the degree of safety for Wildlife Services' (WS) in the arena of zoonotic diseases, we:

1. Reviewed agency policies, directives, and supporting documents.
2. Reviewed training requirements, procedures, materials, and enforcement.
3. Visited 4 state programs and 1 rabies bait drop operation to observe equipment use, field techniques, administrative support, and other pertinent factors.
4. Interviewed WS staff and administrators.
5. Inquired about and investigated zoonotic infections.

The purpose of this review was to determine the knowledge and preparedness to reduce the risks of zoonotic diseases among WS personnel. To that end, WS directives were reviewed and 5 field visits were made to 4 different states and 8 different localities. Administrative and field personnel were interviewed and observed under working conditions in most states. While fundamental safety precautions are consistently in place, most personnel expressed only limited concern for and knowledge for disease risks encountered during routine job assignments; on the positive side, they did recognize the need and/or value of more training or awareness of disease potentials.

Throughout the following review summary, within each pertinent section, we make a number of recommendations to increase the level of safety in the arena of zoonotic diseases. However, the following are what we deem the most important recommendations for WS, in order of priority, which should be addressed immediately. Although these are prioritized 1-8, we consider them essential and, in fact, they build upon each other. For example, the creation of training to address zoonotic disease safety (#6) is of utmost importance, but such training can't be

developed until other issues are addressed (e.g., development of directive, creation of zoonotic disease safety protocols, etc.).

Priority recommendations:

1. Develop a directive to address the real and potential risks of zoonotic exposure and disease.
2. Identify regional (if not by state) zoonotic disease risks that is cross referenced to the animals that may transmit each disease. Make this information available to all personnel.
3. Continue to develop a higher level of expertise about zoonotic diseases among wildlife disease biologists.
4. Initiate discussions within the agency and with OWCP to address the concern that many zoonotic diseases can and are contracted as part of WS work responsibilities, but that these exposures are difficult to document and thus file OWCP claims.
5. Develop agency-wide zoonotic disease safety protocols.
6. Establish a training academy (distance component as well as local or face-to-face practical training), which incorporates zoonotic disease information into all aspects of WS activities.
7. Maintain a positive work environment with open communications.
8. Integrate wildlife (zoonotic) disease awareness into all aspects of WS activities.

Major Risks Associated with the Zoonotic Diseases in the WS Program

The major risks of and associated with zoonotic diseases in WS program include:

1. Contracting a zoonotic disease through:
    a. Direct contact with an infected animal,
    b. Fomites (contaminated equipment, needles, etc.),
    c. Insect vectors (e.g. ticks, mosquitoes, flies, etc.),
    d. Environmental contamination (e.g. lepto through urine, deep fungi through soil contamination)

2. Failure of health care personnel to accurately and rapidly diagnose various zoonotic conditions. Many of these conditions are NOT routinely encountered by physicians and can be overlooked, thus postponing appropriate treatment in many cases

Findings, Discussion, and Recommendations

Directives

In essence, no current directive directly addresses the risk of zoonotic diseases in the WS program. A review of the available directives indicates they are quite general and leave much room for specifics to be addressed at the local level or through SOPs. Directives 1.101 The Wildlife Service Policy manual, 1.201 Mission and Philosophy of the WS Program, 2.515 Disposal of Wildlife Carcasses,2.601 Safety, 2.605 Safety and Health program, 4.301 Employee Development, 4.210 Program Evaluation, 4.305 Meetings and Conferences, and 4.405 WS Safety and Health Incentive Program were reviewed. Most directives place the emphasis for

personnel safety upon the employee and appear to protect the interests of WS. It was noted during multiple interviews that there is consistent concern over an employee contracting a disease that is likely job-related, but in order to receive compensation the employee must demonstrate conclusively to have contracted the disease "on the job" (e.g. tick- or mosquito-borne illnesses requiring constant documentation). This atmosphere of defensiveness is not conducive to excellent employer / employee relations. Zoonotic disease is briefly mentioned in one directive (2.501) and then only at the bottom of page 2. A separate directive concerning this topic could be quite advantageous.

Policy Recommendations:

1. To emphasize their importance, develop a directive to address the real and potential risks of zoonotic exposure and disease.

Safety Program Administration

The relatively new WS National Wildlife Disease Program is an important and innovative approach to infuse zoonotic disease awareness and safety throughout the agency. Indeed, WS serves as the national leader in the arena of wildlife diseases, mostly because of the new National Wildlife Disease Program. By placing personnel with zoonotic disease expertise in most state programs, the agency has highlighted the importance and future implications of zoonoses and, significantly, WS has created a framework to integrate zoonotic disease safety throughout the agency. The leadership for the National Wildlife Disease Program has and will continue to be instrumental in leading this group to influence zoonotic issues agency-wide. Certainly, we envision the program leaders and biologists to be heavily involved in implementing many of the recommendations we propose in this report. Although the knowledge level of some disease biologists is less than we hoped for (see training section below), we expect this deficiency to disappear with the ongoing evolution and development of the program. Perhaps our perception is flavored by our background in veterinary pathology and academia, and thus we had unrealistically high expectations. In any event, WS should consider creating an inventory of skills/knowledge for disease biologists, which would effectively establish a benchmark for all personnel in the program.

As mentioned above, no directive exists to directly address zoonoses. As a result, there is a dearth of training protocols and requirements, SOPs, guidelines, or other supporting material to help personnel understand zoonotic risks and accompanying safety protocols. Many of these resources will naturally flow from a strong directive or other policy addressing zoonotic diseases.

Administrators and field personnel with WS have a wide variety of knowledge about the importance and risks associated with zoonotic diseases. Obviously, state directors and other administrators should not possess the same level of knowledge as disease specialists, but they should have a general level of knowledge about zoonotic diseases and, more importantly, aggressively support training for their field personnel. We address this need in the training section below.

The distribution of the laminated medical alert yellow cards indicating that physicians should consider exotic diseases (e.g. brucellosis, anthrax, HPAI, Q Fever, etc) when examining WS personnel is a great measure to protect employees' health, and has in fact been adopted by the larger organization (APHIS). WS personnel are their own best advocates when seeking medical attention and increased personal knowledge can only reinforce their abilities to protect themselves, and the medical alert cards provide significant support for this.

Administrative Recommendations:

1. Develop regional (if not state) lists zoonotic disease risks that are cross referenced to the animals that may transmit each disease.
2. Post this information in a conspicuous location in central and local offices.
3. Maintain clear channels of communication between employees and supervisors.
4. Integrate wildlife (zoonotic) disease safety into all aspects of WS activities, including general zoonotic disease safety training at venues such as state and regional conferences and verification of PPE inventories and use.

Training

Again, the lack of a directive about zoonotic diseases has resulted in little standardization regarding zoonotic disease safety protocols and resultant training opportunities. For the most part, safety protocols have been left to each state program to develop and implement and, more recently, to the wildlife disease program to make national recommendations. Outlines and proceedings of the past several years' Wildlife Disease Biologist meetings and training sessions were reviewed. These materials appear to be excellent and undoubtedly provided great resources to those personnel. But as noted at several site visits, the "train the trainer" strategy is not always successful, and its use should be scrutinized. Certainly, there is value in having each wildlife disease biologist serve as an information resource for each state program, but this should be supplemented with regular input and guidance by bona fide experts. There are several other possibilities for having experts deliver information to multiple locations through video or streaming digital contacts. No longer does "face-to-face" education require long distance travel for many people.

During employee interviews there was great variation is the knowledge base demonstrated. Generally, personnel have a broad yet shallow level of knowledge about zoonotic diseases. For most personnel this is sufficient – as long as technicians, for example, understand what and how to use personal protective equipment (PPE), most potential zoonotic exposures will be prevented. However, wildlife disease biologists, who supposedly possess the greatest level of expertise about zoonoses in the agency, should possess a much more in-depth level of knowledge. Although some disease biologists appeared to have this higher level of knowledge, others could not correctly answer fairly basic questions about zoonotic diseases. However, we recognize our perception may be flavored by our background in veterinary pathology and academia, and thus we perhaps had unrealistically high expectations. In any event, WS should consider creating an inventory of skills/knowledge for disease biologists, which would effectively establish a benchmark for all personnel in the program.

The appropriate use of PPE and use of good field techniques varied widely. Most personnel were very knowledgeable, conscientious, and skilled in the use of PPE and demonstrated good

field techniques, while others were less so. In some specific cases, personnel demonstrated a striking lack of understanding of infectious disease transmission and appropriate protocols. In some cases, for example, personnel wore protective gloves while handling an animal but also handled objects that would be handled again later without protective wear; in another case, an employee stored biological samples in the same ice cooler that contained his lunch. Every effort should be made to improve employee knowledge base concerning conditions to which they could be exposed or to contract during day-to-day work details and to improve employee understanding of various techniques/procedures that mitigate the risk of disease transmission. During field visits without exception WS employees were interested in further training concerning job-related health concerns.

Currently, the I&E manual and training protocol addresses some risks associated with zoonotic disease, but this is not sufficient for all personnel. Certainly, many WS employees never have need for I&E certification and thus never receive that training, but they still may be handling animals and become exposed to zoonotic diseases. All personnel who are subject to zoonotic disease exposures should understand risks and associated safety protocols, independent of the I&E training protocols and curricula.

WS disease biologists are "first responders" and as such they need to reach the scene as prepared as possible for biological as well as other health hazards (e.g. intoxicants, radiological, or physical agents). This may involve additional protective personal equipment as well as knowledge and skills to properly address a wide-variety of situations, which may already be addressed by the emergency response trailers (see discussion below under Field Operations). This should be considered but handled in a state-by-state fashion.

Training Recommendations:

1. Develop and implement several courses (on-line or otherwise) / in-service training modules to improve WS employee awareness and abilities to confront health hazards.
2. Offer advanced training on personal protection from job-related health hazards.
3. Create a training manual specific to zoonotic diseases and maintain it's currency through a WS Employee website.
4. Develop a comprehensive list of needed skills/knowledge for wildlife disease biologist to serve as a benchmark for future training and hiring.
5. Continue to develop a higher level of expertise about zoonotic diseases among wildlife disease biologists, and give them the responsibility for essentially serving as the zoonotic disease safety officer in each state.

Field Operations

The most critical method to prevent accidental exposure is knowledge of and ability to use good field techniques. This knowledge followed by appropriate and properly employed PPE is essential to prevent accidental exposure to zoonotic or other risks. Latex gloves and a non-cluttered work area are first and foremost for most situations. However, the availability of more advanced PPE (e.g. masks, eye shields, tyvek and respirators) may become necessary and should be available on short notice (especially for first-responders). The National Wildlife Disease Program has developed 3 emergency response trailers, which contain all of this equipment and more, and these likely are sufficient to meet this need.

Observations in the field revealed that most employees were using basic PPE and noted that additional PPE was available upon request. However, as noted previously, several WS employees demonstrated a lack of good field practices (i.e. possible cross contamination of equipment and other materials while wearing latex gloves, others stored human food items in a sample ice cooler, or smoked while wearing protective gloves). These practices represent significant opportunities to breach biosecurity in the field and WS employees need constant reminders (refreshers) to maintain their attention level to zoonotic risk. It is human nature to become complacent in the face of familiarity. One state had its employees work in pairs that rotated (i.e. switched partners periodically). This provided and new level of accountability and served to provide mentorship for newer employees. This should not be viewed as luxury, but as good field practice, particularly when employees are working on projects with a high risk of zoonotic disease exposure.

"Sharps" in the field pose a great zoonotic risk to WS personnel (perhaps second only to being bitten or scratched by wildlife). In the field, some personnel did not handle sharps appropriately. Thus, appropriate training and practice concerning the handling of these materials is critical (see training comments above).

Field Operations Recommendations

1. Continue to provide appropriate equipment and materials (including disposal).
2. Maintain knowledge of risk and mitigation techniques to avoid risk.
3. Encourage communication/mentorship with all employees.

Accidents, Injuries, and Illness

An email survey of state directors identified a few reports of documented zoonotic disease amongst WS personnel, but many of these were either not submitted to or approved by OWCP. There was consistent concern over establishing "on-the-job" exposure in the event that an employee contracts a zoonotic disease. Follow-up conversations with these state directors who reported zoonotic infections were not completed as calls were not returned. Personal communications (anecdotal information) with other WS employees indicated that the incidence of job-related health concerns is higher than actual reports. This is an interesting (unexplained) observation as the culture of WS is such that most employees appeared to be comfortable enough with supervisors to share concerns and ask for assistance as needed. Likewise most supervisors paid personal attention to concerns of field and office employees. The reason for this incongruity remains unclear.

In situations where infections or possible infections occurred, WS administration was conscientious and effective at supporting the appropriate testing and treatment.

In nearly every case of reported infections or possible infections, the root cause was either insufficient PPE or poor field techniques. These issues are easily resolved via our training recommendations and subsequent accountability to follow safety protocols.

Accident Recommendations

1. Initiate discussions within the agency and with OWCP to address the concern that many zoonotic diseases can and are contracted as part of WS work responsibilities, but that these exposures are difficult to document and thus file OWCP claims.
2. With regard to recommendation 1, develop a better tracking system to quickly identify zoonotic exposures and potentially link those with personnel working on high risk projects.
3. Explore possibility of providing blood testing and/or banking for all new and transferred employees, which establishes a baseline from which to monitor and discover all potential diseases contracted on-the-job.

Wildlife Service's Culture and Attitudes toward Safety

Overall, WS should be commended for its culture and attitudes towards safety. In most states, we observed highly conscientious and committed professionals who paid attention to human safety. However, we encountered the occasional situation where this level of enthusiasm and competence was lacking and thus there is always room for improvement.

As one state director noted, WS needs to integrate zoonotic disease safety into all aspects of agency activities. This can be a daunting task for some states who have expansive territory and numerous personnel to manage. However, it is a task that MUST be undertaken to maintain the confidence of employees and the general public.

Most states demonstrated a team of employees who respected and promoted education and knowledge. In some states, there was also an obvious culture against education as we heard employees teased that they had a college education. These attitudes were not generally mixed within a state, but rather either distinct or absent within each respective state.

Culture Recommendations

1. Integrate wildlife (zoonotic) disease awareness into all aspects of WS activities
2. Encourage communication / mentorship with all employees

Summary

Overall, Wildlife Services is to be commended for its' zoonotic safety record and for the creation of the National Wildlife Disease Program, which is an important and innovative approach to infuse zoonotic disease awareness and safety throughout the agency. But, there is always room for improvement, and we hope to encourage the resolve of WS to improve on an already good zoonotic safety record. WS employees are bright and eager to do a good job. They come from diverse educational and experiential backgrounds and as such administrators need to pay heed to the skills, knowledge, and abilities of new hires, while striving to ever increase the potential of more long-term employees. While attention to the details of safety was evident during most site visits, there were occasional lapses in appropriate behaviors and techniques. It would appear that the desire to accomplish the WS mission as safely as possible is the goal of all WS personnel that we encountered. This will require some increased vigilance on the part of leadership and the allocation of appropriate resources (financial and man-power) to accomplish this task. Perhaps most importantly, the development of agency-wide safety protocols and procedures to protect

personnel against zoonotic disease risks will allow the development of effective training protocols and subsequent field practices.

Listing of all Zoonotic Diseases Reviewer Recommendations

Directives, Manuals and Operating Procedures (DMP)

1 Develop a directive to address the real and potential risks of zoonotic exposure and disease.
2 Develop agency-wide zoonotic disease safety protocols.
3 Create a training manual specific to zoonotic diseases and maintain it's currency through a WS Employee website.
4 Develop regional (if not state) lists of zoonotic disease risks that are cross referenced to the animals that may transmit each disease.
5 Post this information (in DMP-4) in conspicuous locations in central and local offices.

Management and Administration (MA)

1 Initiate discussions within the agency and with OWCP to address the concern that many zoonotic diseases can and are contracted as part of WS work responsibilities, but that these exposures are difficult to document and thus file OWCP claims.
2 With regard to MA-1, develop a comprehensive list of needed skills/knowledge for wildlife disease biologist to serve as a benchmark for future training and hiring. (same as TP-5)
3 Continue to develop a higher level of expertise about zoonotic diseases among wildlife disease biologists, and give them the responsibility for essentially serving as the zoonotic disease safety officer in each state. (same as TP-6)
4 Explore possibility of providing blood testing for all new employees, and then on an annual basis, to monitor and discover all potential disease exposures.
5 Maintain clear channels of communication between employees and supervisors. (same as C-2)
6 Encourage communication/mentorship with all employees (same as C-1)
7 Integrate wildlife (zoonotic) disease safety into all aspects of WS activities, including general zoonotic disease safety training at venues such as state and regional conferences and verification of PPE inventories and use. (same as C-3)
8 Post this (zoonotic risk) information in a conspicuous location in central and local offices. (same as C-4)

Training Program (TP)

1 Develop and implement several courses (on-line or otherwise) / in-service training modules to improve WS employee awareness and abilities to confront health hazards.
2 Offer advanced training on personal protection from job-related health hazards.
3 Establish a training academy (distance component as well as local or face-to-face practical training), which incorporates zoonotic disease information into all aspects of WS activities.
4 Maintain knowledge of risk and mitigation techniques to avoid risk.
5 Develop a comprehensive list of needed skills/knowledge for wildlife disease biologist to serve as a benchmark for future training and hiring.

6 Continue to develop a higher level of expertise about zoonotic diseases among wildlife disease biologists, and give them the responsibility for essentially serving as the zoonotic disease safety officer in each state. (same as MA-2)
7 Create a training manual specific to zoonotic diseases and maintain it's currency through a WS Employee website.

Equipment, Facilities and Maintenance (EFM)

1 Continue to provide appropriate equipment and materials (including disposal)

Databases and Tracking Systems (DB)

1 With regards to MA-1, develop a better tracking system to quickly identify zoonotic exposures and potentially link those with personnel working on high risk projects.

Culture (C)

1 Encourage communication/mentorship with all employees.
2 Maintain a positive work environment with open communications.
3 Integrate wildlife (zoonotic) disease safety into all aspects of WS activities.
4 Integrate wildlife (zoonotic) disease safety into all aspects of WS activities, including general zoonotic disease safety training at venues such as state and regional conferences and verification of PPE inventories and use.

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